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ABSTRACT

This document contains 14 papers on human resources (HR) and human resource management (HRM) in virtual organizations. The following papers are included: "Series Preface" (Rodger Griffeth); "Volume Preface" (Robert L. Heneman, David B. Greenberger); "The Virtual Organization: Definition, Description, and Identification" (David B. Greenberger, Sheng Wang); "HR Strategy in Virtual Organizations" (N. Fredric Crandall, Marc J. Wallace Jr.); "HR Outsourcing and the Virtual Organization" (John McClendon, Brian S. Klaas, Thomas W. Gainey); "Virtual HR Departments: Getting Out of the Middle" (Scott A. Snell, Donna Stueber, David P. Lepak); "The Role of the HR Professional in the Virtual Organization" (Dave Ulrich, Richard W. Beatty); "Job Analysis and Competency Assessment" (Kathryn M. DeCaprio); "From Traditional to Virtual: Staffing the Organization of the Future Today" (Jill E. Ellingson, Carolyn Wiethoff); "Training and Development in Virtual Organizations" (Raymond A. Noe, Marcia J. Simmering); "Performance Management in the Virtual Workplace" (Jeanette N. Cleveland, Susan Mohammed, Amie L. Skattebo); "Hybrid Reward Systems for Virtual Organizations: A Review and Recommendations" (Robert L. Heneman, Judith W. Tansky, Edward C. Tomlinson); "Negotiation in Virtual Organizations" (Roy L. Lewicki, Brian R. Dineen); "HRM Strategies in Managing Virtual Organizations in China: A Case Analysis of Banking E-Commerce Projects" (Zhong-Ming Wang); "Organization, Work, and Human Resources Process Redesign at Smith & Nephew Orthopaedic Division: A Case Study" (N. Frederic Crandall, Marc. J. Wallace Jr.); and "HRM and the Virtual Workplace: Some Concluding Observations and Future Directions" (Robert L. Cardy). Most papers include substantial bibliographies. (MN)

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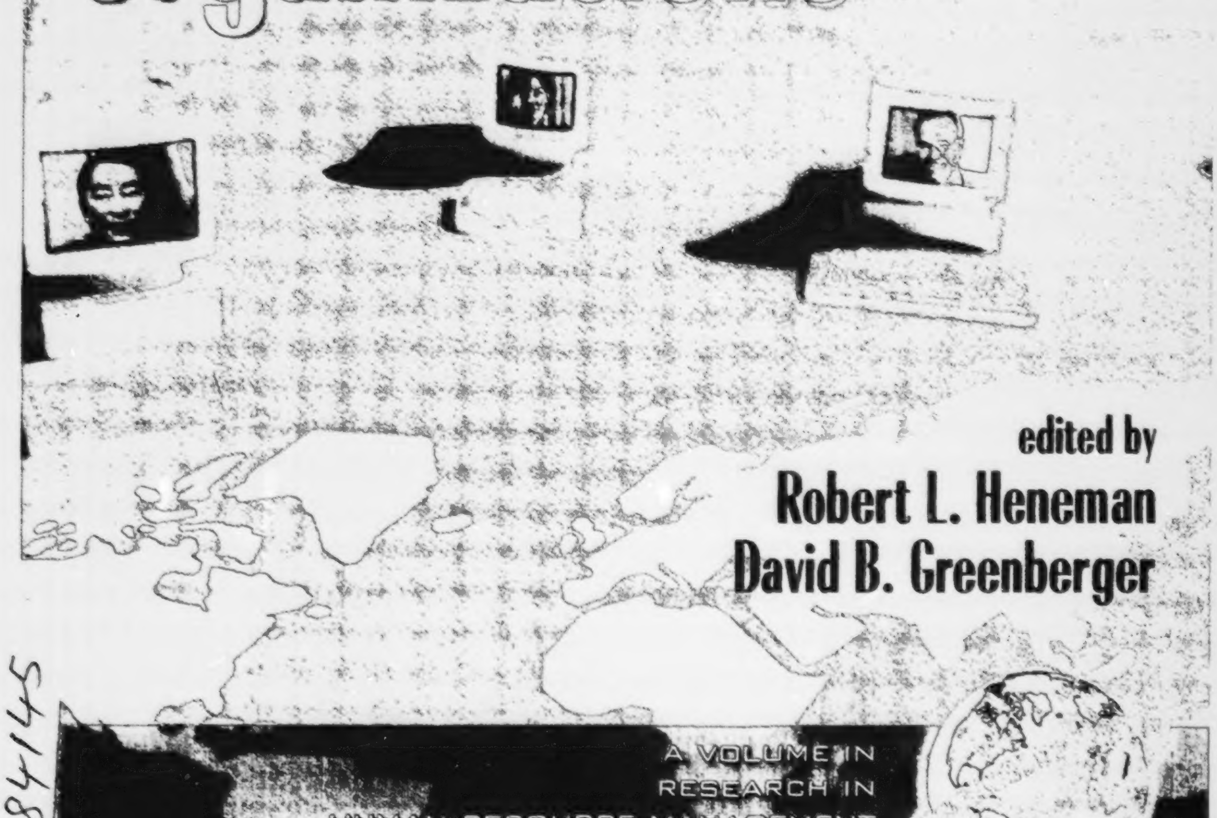

edited by
Robert L. Heneman
David B. Greenberger

A VOLUME IN
RESEARCH IN
HUMAN RESOURCE MANAGEMENT

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Human Resource Management in Virtual Organizations

A Volume in
Research in Human Resource Management
Series Editor: Rodger Griffeth, University of New Orleans

Human Resource Management in Virtual Organizations

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edited by

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Printed in the United States of America

With love,

To all my sisters
Alta, Susan, and Michelle
—RLH

To my wife, Susan
—DBG

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SERIES PREFACE

HRM in Virtual Organizations is the first volume in this new series titled *Research in Human Resources Management.* As such, it is the first of a number of volumes in the series that, we hope, will examine important topics imaginatively and rigorously. The current volume is an extremely innovative look at a relatively new area that should grow and develop as researchers see the need for conceptually guided empirical studies that help to coordinate HR systems within the organizational structure. We hope this volume will help to guide and stimulate research in this area. In addition, we believe that this volume should also be of interest to practionners, consultants, and anyone concerned with the fusion of technology and HRM. I'd like to thank Rob Heneman and David Greenberger for believing in, and having the vision to develop this project and see it through to the end.

—Rodger W. Griffeth
Series Editor

VOLUME PREFACE

Our goal in editing this book is to fill a void in the human resource management literature. While much as been written about the new forms of organizational structures referred to as virtual organizations, relatively little has been written about the impact of virtual organizations on human resource management research and practice. In this volume we will explicate the concept of virtual organizations and how human resource management systems need to accommodate these new forms of organizational structure.

The importance of this topic to academics and practitioners is evident from the many alignment models that all indicate that organizational effectiveness is dependent upon the alignment of organizational subsystems with one another. Lawler (1996), for example, presents a model and evidence showing the importance of aligning the following organizational subsystems with one another: strategy, processes, people, and rewards. Human resource systems primarily reside in the people and reward subsystems so this means that HR systems should be aligned with the strategy, processes, and structure of the organization. While books have been written about aligning human resource systems with the strategy of the organization (e.g., Wright, Dyer, Boudreau, & Milkovich, 1999) and with the business processes of the organization (e.g., Knouse, 1996), little has been written in recent times about aligning human resource systems with the structure of the organization. The importance of this omission to the literature is voiced by Bamberger and Meshoulam (2000, p. viii):

> What should be clear by the end of our book is that the field of human resource strategy is still quite "young" and that there remain many unanswered questions. Furthermore, the development of new organizational forms such as virtual organizations and venture-based alliances (e.g., that between Sun Microsystems and America Online) raise new questions with

> regard to the "fit" of traditional HR strategies and the nature of newly emerging configurations of human resource policies and practice.

This statement captures the essence of the void that we hope to begin to fill with our edited volume.

In order to begin to fill this void, we have assembled on eclectic group of authors from academic, corporate, and consulting worlds. It is our belief that multiple sources best be consulted to understand the new phenomenon known as virtual organizations in terms of implications for human resource management. The authors were charged with discussing implications for both research and practice. By taking this approach, we have increased confidence that the right questions are being raised to guide future research and practice. We recognize, however, that this type of approach may result in some uneven spots across chapters (e.g., academics recommending best practices, and practitioners recommending research issues), but given the newness of virtual organizations, it is hard to believe that any one source is most likely to best raise and answer the questions posed in this book.

The book is organized in five parts with a brief introduction by the editors to each part. Part I provides an introduction to the book by reviewing and analyzing definitions of virtual organizations and providing insight as to the strategic role that human resource plays in virtual organizations. Part II provides an assessment of human resource programs should be delivered in a virtual organization. Consideration is given to the role that outsourcing plays, to the configuration of virtual human resource departments, and to the new roles human resource professionals are required to perform. Part III has human resource programs as the focus. A chapter is devoted to each of the following topics: Job analysis and competency assessment, staffing, training and development, performance management, reward systems, and negotiations in virtual organizations. Part IV consists of case studies of human resource management in virtual organizations both domestically and abroad. Organizations reviewed include several banks in China, and the Smith and Nephew Orthopedic Division as well as incubator companies at Intel in the United States. Part V is a summary of the entire book as well as a set of conclusions for consideration in future human resource practice and research.

Our hope is that our book will be helpful to people in the human resource field in several different ways. First, the book provides leads as to where future research is needed in nontraditional (Part II) and traditional (Part III) areas of human resource management. We would like to see this book on the shelves of our colleagues conducting human resource management research. Second, the book provides many guidelines for effective human resource management practice in virtual organizations. We would like to see this book on the shelves of human resource management practitioners charged with designing, implementing, and administering human resource management programs in virtual organizations. Third, a fair number of human resource management issues not considered in traditional human resource management textbooks are raised in this book. We would like for our book to be used as a supplement to human resource management textbooks to illuminate one of the new paths in organizations that human resource professionals are increasingly being asked to deal with.

In editing this book, we have had the support of many people that we would like to acknowledge. We would like to thank George Johnson and Rodger Griffeth for giving us the opportunity to edit this volume in a new human resource management research series. We would like to thank the AT&T Foundation and Marilyn Reznick for the funding and support that they have provided to us on this project. Joan Evans provided superb editorial assistance throughout the entire process, and Thomas Lah offered his special insight and perspective. Lastly, we want to thank the authors in this volume for helping us to advance our knowledge of human resource management in virtual organizations.

—Robert L. Heneman
David B. Greenberger
Volume Editors

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Part I

INTRODUCTION

One of the more daunting tasks facing each of the authors in this book was to come to an understanding of what it means for a corporation to be virtual. The editors did not impose a standardized definition for the authors because there are so many definitions to work from. In order for the readers to make sense of this concept for themselves, Greenberger and Wang review an analyze the various definitions of virtual organizations offered in the literature, as well as provide a case example of a virtual organization that is consistent with many of the elements found in the definitions of virtual organizations.

In Chapter 2, Wallace and Crandall examine the development of virtual organizational forms over time, review their model of different forms of virtual organizations, provide a case study from Ross Valve Company of the human resource management implications of a virtual organization structure, and compare an contrast differences between traditional and virtual organizations.

CHAPTER 1

THE VIRTUAL ORGANIZATION

Definition, Description, and Identification

David B. Greenberger and Sheng Wang

ABSTRACT

The term, virtual organization, has made its way into the lexicon. Although the term has been used differently by various individuals, most appear to agree that it describes the new relationships among organizations and individuals and is enabled by technology and driven by the internationalization of business. In this chapter, we attempt to identify the essential characteristics of virtual organizations which include a focus on flexibility, partnerships, projects, and core business activities. To understand virtual organizations, we also provide an exemplar and discuss the thought process that led to its implementation and the challenges with which it has had to deal. Finally, because virtual organizations necessarily involve individuals working across traditional organizational boundaries, we explore the importance of developing a shared social identity among the participants of a virtual organization and speculate on the ways in which leaders might enhance this identity.

INTRODUCTION

It is not uncommon for participants in many firms to find themselves trading ideas about breakthrough projects with "co-workers" who may be ten thousand miles away, while at other times they may be working with individuals who are situated near to them physically but are not conventional employees of the same company. The regularity with which individuals interact with and need to manage these quasi-members of their organization (i.e., those outside the traditional organization boundaries and thus, "off-payroll") reflect some truly significant changes that have occurred in the work environment in the United States since at least the late 1980s. While it is dangerous to speculate prematurely about how history will view these transformations, perhaps time will point to them as some of the most meaningful ones that have occurred in the field of management.

Given the changes in where individuals work, combined with the multiplicity of those with whom they work, it is not surprising to find that the boundaries of the organization have become more ephemeral. Consequently, one might expect individuals in contemporary organizational environments to focus less on themselves as employees of a traditional organization and more on themselves as part of, and contributing to, an entity far larger than the parent organization that employs them. We believe that this larger entity, composed of federations of individuals and organizations, can be termed a "virtual organization" because in effect it is an organization, albeit not in the traditional sense. Despite employees' attractions to these new entities, the attachment to the parent organization—that is, the one that "cuts" the payroll checks—persists. We suggest that the key both to understanding virtual organizations and to specifying the cornerstones of success lies in ensuring that there is alignment in the attachments and identities of the participants to both the virtual organization and the parent organization.

Virtual organizations arise from collaborations, federations, associations, contracts, and alliance relationships. With the concomitant (and very salient) increase in the use of technology, it would be natural to attribute the growth of virtual organizations to technology (as do O'Mahony & Barley, 1999), but the reality is that their genesis and growth only partly result from the tremendous influx of new technology. Technology, while important, is more the enabler than the driver. At a general level, we instead see two factors leading to the growth of virtual organizations. First, the growth of virtual organizations may reflect the recommendations of scholars and consultants who have been chanting the mantra that organizations should focus on their core competencies and should outsource those activities falling outside this core (i.e., outsource to those who have special competencies or to "pure players"). Second, the recommendations are often justified by the need for maximum flexibility as required in a more global and dynamic business environment (Boudreau, Loch, Robey, & Straud, 1998).

More specifically, as can be seen in Figure 1, there appear to be five precipitating factors that lead organizations to engage in these types of relationships: outsourcing, expansion, protection, augmentation, and distribution. Let us provide some examples of these. First, there can be traditional *outsourcing relationships*, ones in which an organization contracts with another company, such as a consulting company, to perform tasks that lie outside the organization's core (e.g., benefits, payroll, IT networking). Second, two organizations may form an alliance to jointly *expand* or build their products or services. In this case, the competencies of the two organizations form a winning combination that neither could bring singularly to the table. International alliances, for example, often form because each partner brings unique understanding based upon its own work and a sensitivity developed in the context of its own cultural experiences. Third, still other alliances are formed to eliminate, or to *protect* organizations from, potential competition. When two very powerful players in an industry team and form an alliance, the hope is not only to capitalize on each other's business relationships, but also to use their combined presence and clout to keep smaller players out of the market. Fourth, the alliance may be of individuals: these organizations may utilize contingent workers, "free agents" or contract workers, who come into an employment situation to *augment* the core, particularly to work a specialized project. Finally, and this is by no means an exclusive list, a small company may partner with a large

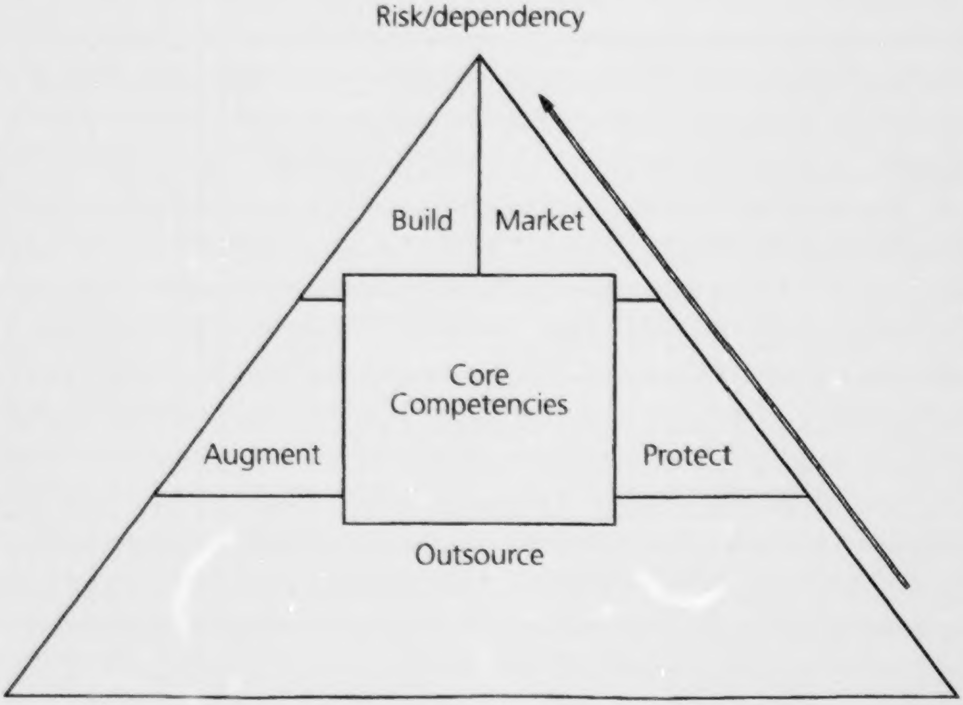

Figure 1. Origins of virtual relationships.

organization because the small company needs to avail itself of the *distribution* capabilities of another company; it may have a unique product and cannot grow it without the marketing skills and presence of the larger organization (Alvarez & Barney, 2001).

As is suggested, there are different goals that are anticipated from each type of relationship, but the figure also suggests two other factors associated with these motivations. That is, some of the motivations are far more differentiated than others. An interest in outsourcing basically arises because outsourcing may fill in the knowledge and competencies that are no longer present when a firm focuses on its own core. In contrast, some organizations have more specific goals, such as building, and when this occurs, the specific competencies of potential partners is much more narrowly defined. Moreover, as the availability of appropriate partners becomes limited, there necessarily are increasing risks associated with moving into a virtual organization. That is, if there are few replacement alternatives for a dysfunctional relationship, then the reliance upon the partner and the pressure to make the alliance work become great. So, both differentiation and risk are associated with the organization's attempt in forming these virtual organizations.

Clearly these relationships and their motivations are not unique, but what makes virtual organizations worthy of examination is the fact that it is clear that both the quantity and complexity of the relationships with so-called partners have increased significantly. That is, for the first time on a large scale, mundane interactions no longer are constrained and defined by physical location or by source of employment. Whereas the term "boundary role" person (Adams, 1977) was coined to signify those unusual employees who worked on the edges of a division or organization, in the 21st century, it is increasingly rare to find a manager who does not have ongoing relationships with "off-payroll"[1] partners. In a sense, then, contemporary organizations force us to shift our focus from the real boundaries between organizations to the dynamic and omnipresent relationships among partner organizations and off-payroll co-workers. As projects are begun, new partners and individuals are added, others are removed, all at the same frenetic pace—and participants take this in-stride.

The movement of individuals, organizations, and partners, into and out of relationships give rise to virtual organizations. Now that we have had some time to evaluate the success and failures of these virtual organizations, a few issues are clear. First, those who focus on strategic management have developed increasingly sophisticated and precise models that outline the conditions under which various types of alliances and partnerships should be formed. Second, achieving success in these alliances and partnerships is anything but certain. Technology and the broader business environment (e.g., globalization) enable and necessitate virtual organizations, and consultants and organizational scholars often mistakenly assume that implementation is sufficient in itself to lead to success; effectiveness, however, is not guaranteed and is often a function of a host of unexplored "softer" issues. In fact, evidence suggests that only a very small percentage of these partnerships are truly viable and persist over any real period of time—if they are even implemented in the first place (i.e., it is not uncommon, such as in the telecommunications industry, for organizations to announce an alliance and have the alliance never progress beyond the discussion stage).

If virtual organizations in all their forms are to be encouraged, then it becomes increasingly important to search for and converge upon the potential origins of success and failure. Only by so doing might it be possible to replicate the successes with any regularity. Nevertheless, there is a true shortage of studies that have focused on just these issues. More specifically, systematic work has yet to examine the managerial and human resource issues surrounding virtual organizations. The intent of this chapter—and the book more generally—is to begin such an inquiry so as to lay the groundwork for future research in this area.

To do so, we will discuss the following. First, because the term virtual organization has been used in a number of contexts and has become a part of the lexicon, it is incumbent that we establish first some understanding of how the term has been used in the literature and develop a more precise understanding of what it implies. Second, after defining what is meant by a virtual organization, an exemplar of such a virtual organization will be described and discussed. This particular alliance was designed to go much farther than others in creating a virtual organization. Third, arising from this and other examples, an attempt will be made to understand what we consider to be one of the most issues surrounding virtual organizations. Finally, an attempt will be made to summarize and point to areas of future study.

WHAT IS A VIRTUAL ORGANIZATION?

As suggested, the term virtual organization has been used to describe a variety of different phenomenon. An examination of how the term has been used is beneficial not only in terms of providing some clarification to the reader, but also in helping to delineate some of the most salient unresolved issues surrounding this phenomenon.

A table of definitions of the term virtual organization is presented in Table 1. As can be seen, there are considerable differences in the way the construct is defined and used, but also some interesting consistencies or basic features. Let us discuss these commonalities. First, virtual organizations are characterized as those organizations in which the ongoing relationships with partners are salient. Various authors (Biernbaum, 1999; Boudreau et al., 1998; Byrne, 1993; Davidow & Malone, 1992; De Sanctis, Stuadenmayer, & Wong, 1999; Dess, Rasheed, McLaughlin, & Priem, 1995; Fitzpatrick & Burke, 2000; Hedberg, Dalhgren, Hansson, & Olve, 1997; Lepak & Snell, 1998; Savage, 1990) describe these partners differently, using such terms as alliances, suppliers, technical experts, and so on, but the critical feature appears to be the inclusion of others (i.e., those not having traditional employment relationships) within the organization's normal operations. These partners frequently are co-located within the organization, but contemporary technology enables them to be located "off-site," often at a considerable distance. Moreover, the increasing dependence of the organization on these individuals would suggest that the significance of these partners has transcended—at least perceptually—from that of being an external entity vaguely working for the firm to one of being an internal fixture within the organization. In fact, the reliance on these partners is so much a part of the functioning of the organization as to make it nearly impossible for the organization to survive in their absence. Therefore, it is important but also a challenge for those who are working in this "virtual" organization, either employees of the organization or employees of the partner, not to think in the way of "our company" and "their company" but to recognize one another as "co-workers" rather than "someone from another company." The formal ties that bind these different partners are frequently contractual but the nature of these contracts can vary tremendously. That is, in some cases, the alliance that is created by the organizations results in a new, equity-based organization in which the various partners each contribute capital to enable the alliance to begin. This type of situation has been common in certain industries, such as the biotech area in which one or more of the major pharmaceuticals may have a significant relationship with a biotech company. The biotech firm obtains the financial resources, the marketing and regulatory expertise it needs; the larger, more traditional, pharmaceutical obtains access to cutting-edge technology and new products (in a sense, outsourcing R&D). Other relationships may resemble more traditional outsourcing ones. These are likely to be different from previous ones in the sense that they operate as partnerships with relationships being more symbiotic. Each recognizes that there is some common good that may be independent of each of their individual successes.

As all of the participants come to work within a virtual organization, they are gradually exposed to a common social environment (if not the same physical environment). Since they are now working for the common good of this whole network of partners, the comparative reference may change

Table 1. Virtual Organization Definition Chart

Author, Year	*Definition*	*Necessary Conditions*
Bierbaum (1999)	"Virtual organizations are technology driven and project based, utilizing temporary alliance in preference to traditional bureaucracy." (p.88)	• Technology • Project • Temporary • Alliance
Bleecker (1994)	"Using integrated computer and communications technologies, corporations will increasingly be defined not by concrete walls or physical space, but by collaborative networks linking hundreds, thousands, even tens of thousands of people together." (p.9)	• Technology • Network
Boudreau, Loch, Robey, & Straud (1998)	Three characteristics of virtual organization: (1) Dependence on a federation of alliances and partnerships with other organizations; (2) Relative spatial and temporal independence; (3) Flexibility.	• Alliance • Temporal/spatial independence
Byrne (1993)	"The virtual corporation is a temporary network of independent companies—suppliers, customers, even erstwhile rivals—linked by information technology to share skills, costs, and access to one another's markets." (p.99)	• Temporary • Network • Technology
Cascio (2000)	Virtual workplace: "in which employees operate remotely from each other and from managers." (p.81) "Virtual organizations are multisite, multiorganizational, and dynamic." (p.81)	• Multisites • Multi-orgnizational
Chiesa & Manzini (1998)	"...the 'virtual corporation', in which firms create flexible linkages among themselves in order to attain common or complementary objectives." (p.111) "In such virtual corporation, firms establish a number of links under different forms, from alliances, to joint ventures, acquisitions, licensing, etc." (p.111)	• Flexible linkages • Alliance
Cohen & Mankin (1999)	"Virtual teams, composed of geographically dispersed organizational members who communicate and carry out their activities using technologies such as e-mail and videoconferencing depend upon effective collaborations s for their success." (p.105)	• Multisites • Technology
Coyle & Schnarr (1995)	"The Virtual Corporation can be formally defined as a temporary network of companies that come together quickly to exploit fast-changing opportunities, for example, the making of a movie." (p.42) "We define virtual organizations as those that 'network' partner resources across traditional company boundaries—with 'on payroll' and 'off-payroll' entities—to get work done according to a shared purpose or goals." (p.42)	• Temporary • Network • Partnerships

Table 1. Virtual Organization Definition Chart (Cont.)

Author, Year	*Definition*	*Necessary Conditions*
Crandall & Wallace (1998)	"The virtual workplace is a work environment where goods and services are created and delivered joining employees beyond the traditional bounds of time and place." (p.8)	• Multisites
Davidow & Malone (1992)	"To the outside observer, it will appear almost edgeless, with permeable and continuously changing interfaces between company, supplier, and customers. From inside the firm the view will be no less amorphous, with traditional offices, departments, and operating divisions constantly reforming according to need. Job responsibilities will regularly shift, as will lines of authority—even the very definition of employee will change, as some customers and suppliers begin to spend more time in the company than will some of the firm's own workers." (p.5–6)	• Continuously changing • Networks • Projects • Edgeless
Davis & Darling (1995)	"In many industries, small, flexible companies outsourced support services, hired temporary staff, and focused on adding the maximum value to a selected number of core competencies. These organizations have been described as virtual corporations or network organizations." (p.70)	• Outsource • Temporary
DeSanctis, Staudenmayer, & Wong (1999)	"…the virtual organization is often defined as one that is interspersed with external ties (Coyle & Schnarr, 1995; King, 1994), managed with an internal structure of virtual teams that are assembled and disassembled according to need (Lipnack & Stamps, 1997; McDonald, 1995; Simons, 1995) and consisting of employees who are frequently physically dispersed from one another (Clancy, 1994; Barner, 1996)." (p.83–84)	• Alliances • Teams • Temporary • Physically dispersed
Dess, Rasheed, McLaughlin, & Priem (1995)	Building blocks for boundaryless organization: (1) The "modular type outsources non-vital functions while retaining full strategic control." (2) "The virtual type is a continually evolving network of independent companies—suppliers, customers, even competitors—linked together to share skills, costs, and access to one another's markets." (p.10) (3) "The barrier-free type involves breaking down all organizational boundaries, both internal and external." (p.7)	• Outsource • Network • Barrier-free

Table 1. Virtual Organization Definition Chart (Cont.)

Author, Year	*Definition*	*Necessary Conditions*
Dickerson (1998)	"The virtual organization is a structure that has at its center a hub. That hub is the essence of the particular business, but in a commercial sense of irreducible minimum, rather than in any Platonic meaning." (p.36)	
Dumaine (1991)	"…in tomorrow's corporation teams variously composed of shop-floor workers, managers, technical experts, suppliers, and customers will join together to do a job and then disband, with everyone going off to the next assignment." (p.36)	• Teams • Temporary • Project
Fitzpatrick & Burke (2000)	"The virtual corporation has been described as 'a temporary network of independent companies, suppliers, customers, even erstwhile rivals—linked by information technology to share skills, cost and access to one another's markets" (Byrne, 1993: 99)" (p.13)	• Temporary • Network • Technology
Hedberg, Dahlgren, Hansson, & Olve (1997)	"the perspective of the imaginary organization refers to a system in which assets, processes, and actor critical to the 'focal' enterprise exist and function both inside and outside the limits of the enterprise's conventional 'landscape' formed by its legal structure, its accounting, its organigrams, and the language otherwise used to describe the enterprise. The imaginary organization is thus a perspective revealing new enterprises which can utilize imagination, information technology, alliances, and other networks to organize and sustain a boundary-transcending activity." (p.13–14)	• Technology • Alliance • Network
Lepak & Snell (1998)	"…the notion of virtual HR: a network-based structure built on partnerships and typically mediated by information technologies to help the organization acquire, develop, and deploy intellectual capital." (p.216)	• Network • Partnerships • Technology
Pape (1997)	"…a global virtual operation whose members live and die by their information systems-fewer than 7% of VeriFone's employees are based at corporate headquarters." (p.31)	• Technology • Multisites
Pastore (1993)	"Thanks to innovations in information processing and manufacturing systems, products and services can be made available cost-effectively to customers at any time, in any place and in any variation—hence the term virtual." (p.47)	• Technology

Table 1. Virtual Organization Definition Chart (Cont.)

Author, Year	*Definition*	*Necessary Conditions*
Savage (1996)	"Virtual enterprising is a process through which companies team their capabilities, building upon their ability to define and redefine multiple cross-functional teams as needed. These teams may include not only members of the company, but also people from vendor or customer companies." (p.231) "Virtual Enterprising is the process of combining the talents and capabilities of many companies to produce a product or service,..." (p. xix)	• Teams • Partnerships
Snow, Lipnack, & Stamps (1999)	"The key factors that we believe set a virtual organization apart are that its members work across space, time, and organizational boundaries (Lipnack & Stamps, 1997)." (p.17) "The virtual organization is essentially a network organization." (p.27)	• Temporal/spatial independence • Network
Townsend, DeMarie, & Hendrickson (1998)	"Virtual teams are groups of geographically and/or organizationally dispersed coworkers that are assembled using a combination of telecommunications and information technologies to accomplish an organizational task." (p. 18)	• Technology • Teams • Multisites in distance
Tucker (1995)	"This fluidity extends to a blurring of the boundaries between the enterprise and entities outside the enterprise, with work migrating to locations outside the company—sometimes to an individual's home. This phenomenon, generally labeled the "virtual organization."	• Multisites • Multi-entities
Upton & McAfee (1996)	"...the virtual factory: a community of dozens, if not hundreds, of factories, each focused on what it does best, all linked by an electronic network that would enable them to operate as one-flexibly and inexpensively—regardless of their locations." (p.123)	• Multi-organizations • Network • Technology

from their own individual organization to the whole virtual organization. This can also lead to the gradual modification of their original prototype of in-group as opposed to out-group.

Since a virtual organization is not the kind that we define as an organization traditionally (Davidow & Malone, 1992), people who work for it are very likely to encounter a feeling of uncertainty at the beginning, and thus there arises a need to reduce this uncertainty. Uncertainty is found to be reduced by a simple and clear prototype with which a person can easily identify oneself (Hogg & Terry, 2000). Therefore, a re-self-categorization into this new organization (new prototype) will be able to provide a new social identity for these people. As a result, individuals who work in the virtual organization treat those who work in this new type of organization as in the "in-group." However, the process of change may not be as simple as it looks and it does not necessarily happen naturally. Most often, intervention is needed to facilitate and expedite the process.

Second, rather than having an organization deal with all aspects of its business, in a virtual organization, the core business activities are reduced in scope, thus leaving other entities to focus on some of the key business functions (Davis & Darling, 1996; Dess et al., 1995). The core business activities of the central organization can still be diverse or very limited. It is still relatively rare for an organization to exist like Nike, where there is essentially a very small organizational core structure that is tied to marketing and design, with much of the rest being outsourced. But even in the technology industry, considerable examples exist of organizations (an exemplar being Cisco) in which a surprisingly small core group works very closely with suppliers, manufacturers, IT providers, and so on, to create what an outsider would view as an organization, but that which an insider would see as containing multiple players. Moreover, it would not be surprising to find that the smaller the core central organization (i.e., leading to those outside the core being more numerous and more critical), the more likely all participants are to view the entire network of participants as a virtual organization.

Third, the core needs to be networked or connected with these partners, and this, in turn, points to the significance of technology in enabling the virtual organization (Bierbaum, 1999; Bleecker, 1994; Byrne, 1993; Cohen & Mankin, 1999; Fitzpatrick & Burke, 2000; Hedberg et al., 1997; Lepak & Snell, 1998; Pape, 1997; Pastore, 1993; Townsend, DeMarie, & Hendrickson, 1998; Upton & McAfee, 1996). In their book, Davidow and Malone (1992) point out that the technology in itself is not everything in a virtual organization, but "it will certainly present it with a host of opportunities" (p. 136). The importance of technology may appear self-evident, but it is important to recognize here that technology enables a seemingly paradoxical relationship with the partners. On one hand, technology allows the core organization to have many relationships, to engage them in an increasingly complex manner, and to do so effectively. On the other hand, despite the capability of having a greater quantity of relationships, the core organization now has the capability of monitoring these relationships more and more closely. Most are familiar with the more mundane ways in which individuals use technology to communicate with one another (e.g., faxes, emails, and express deliveries are ubiquitous components of all business). However, the significance of technology is in the relationships among core businesses and their partners and lies in the great power of the systems to tie all these pieces together. Sophisticated databases and extranets enable the core, central, organization to monitor its own processes and needs and to communicate these instantaneously to its partners. That is, the technology enables the electronic melding of the information systems of the core business with those of its various partners. Rather than seeing information as proprietary, the sharing of key business information with partners, suppliers, and even customers is now seen as a necessary part of doing business. As technology, communication and databases tie the various organizations together, the result begins to function as a real organization. The relationships are based upon the ability to share information on a real time basis. Although often driven initially by legal documents, neither the contracts and agreements nor the sharing and even intermixing of crucial, proprietary information, establishes these entities as a virtual organization. Instead, it is the degree to which the new entity functions in a coordinated fashion that enables the observer and participants to perceive it as if it were a "real" organization.

Issues surrounding technology also give rise to another enabling feature that some authors use synonymously with virtual organizations: telecommuters. Although we believe that the term virtual organization is rather broad and suggests a general state of permeability in the organization, some (e.g., Cooper & Rousseau, 1999) use the term virtual organization interchangeably with telecommuters. The phenomenon of telecommuting is indeed important. Some estimates put the number of telecommuters between 9 and 24 million individuals in the United States. More significantly, the number of firms offering some telecommuting options has jumped from about one in five in 1997 to more than one in three in 2001 (Wells, 2001). These are indeed impressive numbers, and although there is some evidence that organizations have had concerns about increasing the number of telecommuters (i.e., *Wall Street Journal*, 2001 describes the way some organizations have cut back on their telecommuting programs), telecommuting does represent (at least) one aspect of virtual organizations that is deserving of note. What is germane to the present discussion is that when an organization or network of organizations uses telecommuters, this, in itself, suggests that the organization is extending their boundaries and increasing the permeability of organizations. That is, a core group of employees controlling all business functions no longer defines—either by membership or by action—the organization. Without the enabling technology, this would not be possible.

Fourth, taken together, virtual organizations tend to be characterized as flexible and their structure is recognized as transitory and fluid. That is, by definition, the involvement of the core business with these kinds of partners is temporary (Bierbaum, 1999; Byrne, 1993; Davis & Darling, 1996; DeSanctis et al., 1999; Dumaine, 1991; Fitzpatrick & Burke, 2000). In turn, and since all partners typically have a vested interest in maintaining these relationships for as long as needed, the relationships are in a constant state of flux (Davidow & Malone, 1992). The importance of these elements cannot be overstated, because in the business environment in the 21st century, all firms, even those in areas seen as operating historically in relatively stable environments, feel the pressure to be able to change very quickly. The very nature of being involved in a virtual organization can, if managed well, serve as a source of competitive advantage; or if managed poorly, being in a virtual relationship can propel the organization toward insolvency. This is analogous to behavior in a team: when the team is performing well all members of the team work together and the actual, collective, performance of the team can supercede that of the aggregate of what each person brings (Steiner, 1972); when the team is performing poorly, the group continuously invests its time and resources to maintain the group, rather than performance, and thus the actual performance is substantially below that of the group's potential. When relationships in a virtual organization are not managed well, the organization spends far too much time on its simple maintenance, rather than on growing the relationship and maximizing what each partner can derive. For example, organizations that are not able to grow and develop effective relationships are often characterized as "second" or even third or fourth to a market and frequently find that they are in a vicious cycle of always trying to catch up. To try to be better, they always look to benchmarks against their competitors. However, these competitors, who have effective and dynamic relationships with their partners, are much more skillful at developing new relationships, not only with minimal disruptions, but in a way that enhances their business (i.e., with new innovations, markets, and businesses).

Fifth, although not a characterizing condition, many of the definitions point to the importance of groups. This takes two forms. A number of authors (Corbin, 1997; DeSanctis et al., 1999; Dumaine, 1991; Savage, 1990; Schultz, 1996; Snow, Lipnak, & Stamps, 1999) appear to see (some only describing scenarios) virtual teams as a sufficient condition for an organization to be a virtual organization. More and more organizations are having individuals from various locations (i.e., people who are physically thousands of miles apart) work together on projects even though they never come together. The research has sought to uncover the conditions that lead to success and failure in these groups. The use of virtual teams is seen as a very powerful means of working efficiently since their use enables an organization to form teams with members located at a distance (Schultz, 1996; Townsend et al., 1996). When these virtual teams are a salient part of organizations, some view the organization itself as virtual (DeSanctis et al., 1999). In addition, some suggest that a virtual organizations are characterized by their focus upon teams of individuals working on projects, rather than on individuals working at their own jobs. To put this in a more general context, it is possible that what these authors are suggesting is that within the work environment in these virtual organizations, the focus has turned to one of teams of individuals working on projects for fixed lengths of times. Only by focusing on groups or teams can the virtual organization hope to integrate the variety of individuals from all alliances and partnerships and thus become an entity itself.

In sum, a virtual organization must have all of the following characteristics: both partners and a core, flexibility, permeability, the capacity to connect all of the partners with the core, a focus upon teams, and must be perceived (by both those working in the organization and those external to it) at least loosely, as an organization.

THE "TECHNOLOGY ONE ALLIANCE"

To understand better what constitutes a virtual organization, it is useful to describe an exemplar. The uniqueness of this particular virtual organization is on one hand its attempt to integrate all of the participants (some of whom had been historic competitors) into a new organization, and on the other hand, its lack of equity to support this relationship. That is, the attempt is to have all of the participants work with one another to create a new organization, but the actual contractual ties that bind each firm with the core organization are based upon traditional contracts. In this case, the visionary of this virtual organization was Marv Adams, then Chief Technology Officer of Bank One. His goal was to outsource much of the bank's information technology to experts in their respective fields.

The bank had been getting good performance from its internal IT organization, but Bank One had grown rapidly, through a series of increasingly large acquisitions, from a relatively small bank in Ohio to what was then one of the larger super-regional banks (and subsequently is a truly national bank). As the scale of the growth increased, Marv Adams recognized that the bank's technological infrastructure was increasingly unable to cope with the growing scale and complexity of the bank's networking and data processing needs. Moreover, there was a need to bring order and obtain the necessary control over the previously independent entities (i.e., the independent entities who were merged into the bank). That is, when the bank first started to purchase other small banks, Bank One was known in the industry as an acquirer who bought well managed similarly positioned banks and then left the acquired bank to run itself. But, with the increasing number and size of its acquisitions (e.g., in Texas and Arizona), the bank's management team found that there was tremendous redundancy in the product lines and in staff and thus found that the company was increasingly less competitive. John McCoy, then CEO, mandated that rather than each independent bank having its own complete product lines, there would be a small number of specific product lines that transcended the entire organization. The problem was that the then existing information technology in the bank was not integrated with the lines of business and the technology was not necessarily sufficiently sophisticated nor complex enough to handle the needs to communicate and provide a high quality and dependable infrastructure.

Rather than invent these at the bank, it was decided that two so-called pure players would develop and manage these aspects. Across multiple years and in a nearly $2.5 billion dollar contract, Bank One in 1998 contracted with AT&T Solutions to perform networking activities and with IBM Global Services to work on the data processing. The bank was not the first organization to outsource such activities; both AT&T and IBM are some of the best in these respective areas. However, what was different was in the way they went about this. The more typical IT model might have been one of hiring such firms, but also contracting with a consulting firm to act as the so-called "integrator." While this type of consultant might add value, Bank One recognized that fundamentally it needed to have all three parties work together.

No doubt there were two very significant motivators of this. First, the bank would save resources in not having to pay the integrator as well as the additional costs that the original contractors might have tacked onto their bids for having to deal through the integrator. Second, the bank recognized—as few have—that it was absolutely critical that all parties must communicate openly and frequently with one another. That is, the bank and the other two players realized that much could be gained by having members of their staffs communicate directly with those in the other organizations, regardless of level, and not have their communications filtered and distorted by a third party.

To enhance the operation, the three firms created a virtual organization, termed the Technology One Alliance. The explicit goal of this group was to create a "best-in-class" operation. A policy board of directors, which was charged with setting the strategic direction, included divisional heads of AT&T Solutions and IBM Global Services, Bank One's CTO, Marv Adams, as well as the operational leaders from all three entities. For day-to-day operations, various committees were formed, all with representatives of the three organizations. There was, in a sense, the creation of a completely new entity, but there was no equity involved in its creation. The contractual relationships were between the bank and AT&T and the bank and IBM, yet the three organizations agreed to utilize their own resources—that is, part of their margins—to enable the work. Moreover, despite the individual contracts, the virtual organization had shared goals (Capodagli & Jackson, 2001): the policy board was to determine Alliance-wide targets based upon achievement of shared goals; the partners were expected to leverage their performance management and incentive systems to support these shared goals; the partners' success was to be assessed against these shared goals; and, all performance rewards were to be based upon achieving the shared goals. In other words, rather than being focused on their own margins within the relationships, it was agreed that the success of this virtual organization (for again, there this was a non-equity organization) would be based upon the shared goals.

Numerous activities served to create a sense of new organizational identity—an identity that complemented but did not transcend the parent organization. Individuals from the three organizations worked side-by-side; some members of the organization moved to become members of a different organization (e.g., from Bank One to AT&T); teams worked to break down barriers; and the operating committees met frequently to discuss problems and deal with them prior to their becoming serious issues. Taken together, it is not surprising that we view this as a defining example of a virtual organization.

Four years into this seven-year project, it is clear that—as one expects—the results are mixed. There have been considerable successes. Both IBM and AT&T have been able to fulfill their parts of the contract. AT&T has taken over the networking for the bank and IBM now handles the data processing companywide. In fact, as indicated, the scale of the project became considerably greater when Bank One merged with First Chicago-NBD approximately a year after the contracts creating the Technology One Alliance were signed. When the contracts were signed, no one had anticipated that just as the Technology One Alliance would start to ramp up its activities, it would be expected to support an organization nearly twice the anticipated size. This greatly increased both the scope and the complexity of the project, and all of this needed to be done in a truncated time frame.

In addition to providing the services for which they had contracted, the participants in the Alliance identified a number of issues that they saw as key to influencing the success of virtual organizations. These issues were viewed by the Alliance as core values and behaviors and served to guide day-to-day interactions. This provides insights in their priorities and can assist researchers and those interested in managing a virtual organization with a listing of key issues. Specifically, they wanted to: have the group function as a high-performance work team with aligned goals and a commitment to continuous learning; earn trust by following through on commitments; be personally accountable for individual, group, and Alliance activities; enable providers to be pure players; recognize that the interests of all partners have some legitimacy and need to be evaluated; utilize participation in decision making by including key stakeholders and language that transcends the organizations; make effective and timely decisions by involving the right people; and, recruit, train, and retain the best IT professionals.

Despite the success in accomplishing its goals and the pioneering efforts to reach these results, there were problems. Some of the problems arose directly from issues external to the Alliance, whereas the locus of responsibility for other issues was more internal. The first set of tribulations can be traced to the business environment and to the financial structure and management of the organizations. Specifically, within a short time after the merger between Bank One and First Chicago-NBD, Bank One suffered some severe financial problems that initially were located within its credit card division but then had a profound impact upon outsiders' perceptions of the company and analysts' ratings of the company. Ultimately, these and other issues led to the installation of a completely new management team. Once installed, this management team looked to trim costs substantially (i.e., the credit card operation had lost huge amounts of money and combined with the debt incurred in the merger, the bank's stock price was depressed) and did not look upon the Alliance in the same manner as did Marv Adams (who left the bank in 2000) and his team. Moreover, the turnover in the highest levels of management was not confined to the bank. Soon into the contract, AT&T's CEO, Michael Armstrong, announced that AT&T would break up into four new organizations. No doubt this was necessitated by changes in AT&T's traditional businesses (e.g., long distance) as well as changes in the business environment (e.g., a decrease in revenue being derived from its broadband business). Finally, during the middle half of the year 2000, the stock market turned bearish on technology stocks, thus substantially reducing the valuation of all technology stocks.

Taken together, there were very significant forces brought to bear on the Alliance that could not have been anticipated directly, and these served to put pressures on the Alliance itself. Given the issues both in the three organizations and also in the marketplace, it would have been very difficult to keep this type of venture focused on its goals and not on other issues. Just as importantly, an alliance of organizations cannot achieve its potential without a set of champions. When the key champions in the core organization (i.e., Marv Adams and his team at the bank) left, necessarily there were changes in the day-to-day operations (operating board), individuals' commitment to the goals of the venture, and also in the vision of the virtual organization (i.e., policy board). In addition, whenever a new set of leaders is exposed to a new business operation, they must be assured that it will be successful. Given the novelty of this virtual organization, the fact that members of the Alliance necessarily were self-absorbed (i.e., concerned with enhancing their interests), as well as the reality that the bank needed to cut costs dramatically, a new management team could not be expected to walk into this venture and necessarily embrace and appreciate what it could offer. Without visionaries who would advocate for the Alliance (i.e., advocate in a consistent and persuasive manner), the process of changing the attitudes of the new management team was necessarily a long one.

Other issues that continued to affect its success were probably more generic to this type of alliance. The most important of these would be the very nature of the virtual organization. That is, because this was not a formal alliance involving shared equity, profits and savings necessarily have been sent back into the parent firms. When AT&T and IBM beat their expected margins, the revenue helped the bottom line of their respected divisions and ultimately the "pure players." Similarly, when the bank was able to save money, it went to assist its bottom line. Because the virtual organization was not equity-based, revenue could not be shared and this in turn, affected two issues: the motivation of the employees and the ability of the virtual organization to learn. Rewards for employees of each organization could be made contingent on the performance of their group, but the way things were construed, it was difficult to share (let alone, quantify) the collective rewards of the virtual organization. Given the constant pressure to funnel resources back to the parent divisions, whatever resources could be construed as extra had to be taken out of the virtual organization. With almost no virtual organization money available, the Alliance had only limited resources to train for and identify performance unique for the virtual organization, to develop new performance standards specific to the virtual organization, and even identify areas of growth.

Taken together, this suggests that despite their best efforts to create a new sense of "virtual" identity, that transcends the boundaries of the traditional organization, there are nonetheless too many remnants of the traditional organizations that serve to pull participants back into their traditional mode. The implications of this and the ways in which organizations can remove these will be discussed in the next section.

IMPLICATIONS

We began this chapter with the assertion that management practice has been profoundly changed in the past 10 to 15 years or so, yet the knowledgeable reader might note that the characteristics that underlie virtual organizations have existed for some time. What makes the virtual organization so different and so significant?

Virtual organizations diverge in at least two fundamental ways from traditional organizations: they are characterized by a deformation of the nature and boundaries of the organization; and, there typically is a significant redistribution of control beyond the core organizational boundaries. These represent points of departure of virtual organization from more traditional ones and suggest the challenges in managing them.

Whether their root cause is the use of technology to enable telecommuters or virtual groups or simply to change the nature of the organization in order to focus upon one's core competencies, the borders of virtual organizations are permeable. This permits individuals, groups, and even firms to penetrate the core organization (i.e., freely exchange information), and also to change the perceptions of what constitutes the organization (as enveloping these so-called "off-payroll" employees). Individuals can move in and out of the firm; they can be located together or at great distances; the organization can spin off pieces of itself, have these combined with other entities, and then bring them back into its core. All of these, and many as yet to be created models, suggest that the interrelationships among organizations are far more dynamic and difficult to manage than we have witnessed previously.

As importantly, by outsourcing, establishing partnerships and alliances, hiring contract workers, and so on, organizations must empower and trust to a much greater extent those outside the traditional organizational boundaries than they had previously. In a sense, the more a firm retrenches and focuses upon its core competencies, the more its top management similarly must relinquish "command and control" not only to those outside this top group (i.e., within the organization), but also to those potentially employed as partners. This represents a profound change because of the number of firms sharing proprietary information as well as the amount of information being shared. That is, an increasingly large number of organizations have so-called "external" entities embedded in them, and these individually have far more power than anyone would have believed. It is probably fair to assert that the greater the number of such alliances a firm develops, the more it becomes a truism that power is distributed.

As we see more virtual organizations implemented, the implications for management and human practices suddenly become clearer and more challenging because the templates that guide their implementation simply do not exist. Technology and globalization can lead to virtual organizations, but as organizations expand beyond their traditional boundaries, a different set of variables appears to affect their success or failure thus must be specified.

We suggested earlier that as organizations focus on their core competencies, they look to expand their lines of business, create new markets, and augment their skills by creating virtual organizations. But, some of these strategic relationships involve great risk for the core company as well as risks for the partner(s). Outsourcing necessarily means that the core company eliminates whatever expertise it might have had in a given area; partners become dependent upon revenue streams from the core company. One way of lessening risk and regaining some control is to increase the closeness of the relationship (of course, new relationships, as the Enron story suggests, may create new risks). That is, as entities within the virtual organization handle increasingly important pieces of the business, their interdependence increases and they thus run the risk that a partner will leave the virtual organization or hold them hostage to leaving. The more partners perceive themselves as independent from other members of the virtual organization, the greater the perceived threat. Thus, one means of reducing the perception of risk is to focus attention on enhancing the shared sense of identity; in other words, it is best to break down traditional memberships and make members feel part of a virtual organization all while keeping ties to the parent company. The balance of this section describes ways to change and control these group identities.

Overcoming the Old Group Identities

Abundant research in psychology (Brewer & Brown, 1998; Tajfel, 1970) has pointed to the ways in which individuals stereotype, devalue, discriminate against, avoid, and denigrate out-groups while they enhance their subjective judgments, the perceived legitimacy, and their favoritism toward their in-group. Over the past few years, a number of researchers have begun to incorporate this research into the organizational area (Hogg & Terry, 2000; Tyler, 1999). Most relevant to our discussion of virtual organizations, Hogg and Terry suggest that individuals' social identities are important in mergers and acquisitions and that these often fail because of an "us" versus "them" mentality. They note, however, that because the limited research in this area fails to track the ways in which perceptions of identity change over time, the models are not developed. Because of how they change over time, the applicability of the social identity framework is likely to be even more appropriate in the context of the virtual organization than as an explanatory model in mergers or acquisitions has (where there is a fixed point at which there is a new organization and new identities should be formed). With their changing attachments to multiple organizations over time, virtual organizations are necessarily far more complex, and thus they necessitate examination in great detail.

Social Identity Theory

Social identity theory (Tajfel, 1981) suggests that individuals' identity may arise from their motivation to have a positive sense of self. Individuals in social settings tend to characterize themselves and others into discrete (sub)groups. These types of categorizations are made very easily, and it is common, in fact, for people to make these categorizations unconsciously. Fiske (1998) states this clearly: "What is startling about categorization is, first how rapid and apparently automatic it can be; and second, whether automatic or not, how many potentially automatic ramifications it has" (p. 364). Merely categorizing oneself into an in-group and others in one or more out-groups may in itself contribute to a positive social identity,

Tajfel's (1970) work suggests that any salient distinction between the in-group and out-group may be sufficient to activate an array of perceptions associated with members of these two groups. In practice, these salient factors could be as mundane as corporate identification (i.e., who is paying the individual), clothing differences, jargon unique to particular organizations, or more subtle cues as behaviors unique to the corporate cultures. Whatever the cause of the categorization, cues can trigger not just the categorizations, but also a host of perceptions, memories, and biases associated with the in-groups and out-groups.

It should not be a surprise that individuals have biases, to their own group and toward other groups (Ashforth & Mael, 1989) and that the perceptions of these groups go well beyond the mere categorizations. Thus, the significance of blending workforces from various groups and organizations (like we see in virtual organizations) cannot be overstated. Using work in this area as a framework, we can begin to understand some critical factors that may serve as impediments to success in virtual organizations.

What, then, is the effect of these categorizations? As indicated, the most obvious effect is to make clear distinctions between the group within which people are members and their associated out-group, even when only minimal information is present. Once these categorical distinctions are made, there are some predictable consequences. First, it is clear that people tend to favor their in-group over out-groups. Moreover, some have noted that in intergroup situations, there seems to be a norm of competition (Tajfel, 1970). Even if competition does not really exist, so long as individuals believe that they are in a competitive situation, the following develops: an associated lack of trust toward the out-group is manifest and people feel that the in-group must be protected (Brewer & Brown, 1998). Of course, if all parties believe that they are in a competitive situation, and they behave competitively, then competition becomes a reality and not simply a perception. Put another way, if you believe that others will try to maximize what their group obtains, it would be reasonable to try to obtain resources and outcomes for your in-group and from this, a lack of trust may result. If, however, the groups really are in competition, the characteristic biases to the in-group and out-group are especially likely to occur.

Still another characteristic of the biases people develop from social categorizations is evident in the way individuals perceive members of the in-group and out-group. Specifically, people tend to see out-groups as especially similar to one another; that is, as much more homogenous than they actually are. So, rather than looking to specific individuals (who belong to alliance partners) as potentially bringing expertise and uniqueness to a project, instead they will view all such partners collectively and negatively, believing that they have little to contribute. In contrast, when one cognitively assigns co-workers into group categories, there is a tendency to view one's own group as far more heterogeneous and much more positive than it really is. This will, in turn, serve to further enhance the likelihood that individuals will discriminate against the out-group and simply treat them differently.

The manner in which these perceptions develop and are enhanced is subject to various interpretations, but contemporary thought (Brewer & Brown, 1998; Fiske, 1998) points to its cognitive roots. That is, memory appears to be a critical factor in maintaining intergroup stereotypes. Individuals recall information that conforms to their stereotypes and fail to process much of the information that is inconsistent with these stereotypes. This type of processing, moreover, is particularly pronounced when individuals are exposed to large amounts of information (Fiske, 1998). In addition, when people have categorized members into an out-group, they often confuse them, such as not remembering who has done what (Taylor, 1981).

Finally, the research points to situations in which emotion and prejudice are likely to arise. That is, in situations of group threat, prejudice to the out-group is more likely. Moreover, when the goals of the out-group are judged to be different from the in-group, the out-group is viewed negatively because they are seen as a threat to the nature of the in-group. Outsiders are considered likely to block group goals, and this creates frustration and anger (Fiske, 1998).

Creating a Shared Social Identity

What does this suggest for the virtual organization? For those working in a virtual organization, it would be expected that members of the core organization would perceive other members of their core organization as the in-group whereas partners or contingent workers would constitute the out-group. For partners, it would be the opposite; in this case, members of the core organization, as well as, potentially, other partners, would be the out-group.

We suggest that organizations must learn to control and effect changes in these identities. Left uncontrolled, organizations will be confronted with a quasi group where participants look suspiciously at each other. Necessarily, cooperation will suffer and thus the success of the virtual organization will be at risk. Instead, the perception of one's in-group must shift from that defined by a parent organization who pays the individuals directly to that defined by the larger entity.

Successful virtual organizations are the ones who alter these identities and do so in strategic ways. Basing this upon the literature, the following are some of the more powerful means of altering identities and developing a new sense of shared social identity:

1. **Increasing contact between the groups**. Going back to Allport (1954), there has been a belief that the more contact exists between in-groups and out-groups, the less likely people are to rely upon stereotypes. That is, the more likely they are to judge people on their individual characteristics, rather than on those associated with their group. But, mere contact is not sufficient; Allport asserted that there must be some institutional support whereby contact is encouraged, the contact must be sufficiently frequent and meaningful so that relationships can develop, the contact must be of relatively similar people (i.e., those of about the same status), and there must be areas in which they have to work together cooperatively.
2. **Focusing on goals that transcend each group**. One of the easiest means of developing a new sense of identity is for the individuals to work on goals and projects that go beyond their own group. Projects that involve individuals from all partners are one of the easiest means, but these projects have to be salient. That is, it is not sufficient to have individuals working on a small, insignificant, token project, but instead, the significance, and thus the salience, has to be meaningful.
3. **Breaking down old group identities**. The virtual organization must focus first on breaking down the old group identities. One of the most effective strategies may be to reduce the salience of categorical distinctions. Wilder (1987) suggested that we focus attention on individuals, rather than on the groups. Moreover, salient cues may be obvious, such as physically grouping together partners from the same organization and isolating them from those in other organizations. But the cues may be more subtle, such as in job titles, compensation issues, availability of training jobs, focus on corporate (parent company) profits, and so on. The greater the extent to which there are differences, the more likely there will be animosity between the groups.
4. **Increasing mobility among the partners**. Research (Brewer & Brown, 1998) suggests that when individuals recognize that there are opportunities to escape their group, then their ties to their in-group diminish in significance. Thus, in virtual organizations, the sense of being able to move to other groups, particularly those with equal or higher status, will serve to weaken the ties to the pre-existing group. Organizations are obviously sensitive to the loss of good employees,

but if members of the virtual organization are to feel part of the newer organization, then the virtual organization should consider encouraging the employees to move their employment status around to other members of the virtual organization.

5. **Removing the stereotypical information.** Individuals look for confirmatory information to support their stereotypes and tend to ignore information that is inconsistent. We all have images of other organizations, and many of these have a basis in the culture of the organization. However, if alliance partners are to work in a virtual organization, it is critical that the roles of the participants should transcend that for which they are known.
6. **Eliminating competition among the partners.** As indicated, mere categorization can lead to feelings of competitiveness that in turn, can lead to a lack of trust. But, when there is competition (or a threat) among the groups, positive biases toward one's own group and denigration of the out-group are particularly likely to occur (Crocker, Thompson, McGraw, & Ingerman, 1987). Thus, it is critical that any sense of competitiveness among the partners be removed. Obviously, issues surrounding compensation could easily, if not managed well, be sources of potential problems. However, external threats to the virtual organization, such as poor financial performance by the industry, or mergers (such as the one we saw with the Technology One Alliance), may serve to undermine the collective activity of the participants.
7. **Developing intersecting memberships.** So long as the ties to the original organization remain, the virtual organization runs the risk that some other categories (such as membership in a professional group) may increase the persistence of the categories even in the face of contact, etc. (Brewer & Brown, 1998). What may be necessary is to develop new groups that cut across the basic categories. For example, developing project teams where members of all partners are included will act to create a sense of identity about this team, but it will also serve to cut across and thus, undermine, the prior categorizations.
8. **Developing norms of shared information.** Since one of the things organizations do to establish walls and boundaries between themselves and others and also to psychologically establish divisions is to have clear policies about what can be shared and not shared, it is essential that information be shared. Obviously, not only will it have the effect of removing some of the psychological differentiation, but it also serves to enhance trust and remove some stereotypes.
9. **Having advocates for the virtual organization.** Underlying all that we have been discussing lies the fundamental fact that we are interested in changing attitudes to the organizations and its members. Research is clear in identifying some basic ways of changing atti-

tudes. These include having expert or credible sources and having them articulate consistent messages (Petty & Wegener, 1998). Champions, that is leaders who have the expertise, the position power, and who serve as consistent advocates, clearly can perform this role. Without champions, the virtual organization runs the risk that there will not be anyone who has the status and credibility to deliver the consistent message about the utility and importance of the virtual organization, and when this happens, the virtual organization can begin to deteriorate. As described, the Technology One Alliance suffered such a problem when the management team was changed.

10. **Selecting leaders who have required skills**. Do most organizations have leadership programs that select leaders for their skills in managing and working within virtual organizations and are their programs designed to train leaders to function more effectively in this environment? A cursory examination of the typical topics covered in the academic leadership literature (Bass, 1990) suggests that it is indeed rare for authors to focus explicitly on the set of unique competencies that might be required to lead effectively contemporary virtual organizations. And, if these competencies are not understood, it is unlikely that the organizations will look for these in their selection or develop training programs to enhance them in their management team. Possible competencies would involve: dealing with ambiguous power and structural issues; communicating with very limited face-to-face communication; knowing the competencies necessary to staff these organizations and being able to discern these in others; managing project teams with shifting staffing and cultural differences; managing unusual time frames, overcoming stereotypes and prejudices; managing a diversity work group; and, developing visions.
11. **Reassessing when new partners are added**. Coupled with this change in the nature of power and control is the fact that each time individuals or partners are added to an organization, this necessarily results in a disruption to the organization. At the firm level, this disruption is analogous to that of a group that adds a new member. That is, when one or more individuals are added to a group, the balance, the norms, and the status quo are all changed. The group cannot let this imbalance persist or it will sap too much energy from the group. Thus, the group focuses energy (manifest in the form of negotiations, re-norming, increased communication) to arrive at a new, more comfortable and balanced state. Viewed in a different way (i.e., in terms of its ability to process information), the group's capability to process information is finite. If it persists in spending too much time dealing with process issues, then the group cannot devote sufficient time to performance of the tasks at hand. After a

finite period of time, maintenance of the group needs to be relatively automatic, enabling the individuals in the group to attend to performance-related issues. Similarly, when confronted by the addition of new individuals and groups of individuals to the organization, the new organization has to develop new norms, new policies, and new methods of communication or else it will find itself increasingly "bogged down" with process issues. Thus, the challenge for the virtual organization becomes one of shortening the process by which new alliance partners are integrated seamlessly into it. Whereas a group might be able to afford to spend half of its time on developing its process (Gersich, 1988), in today's economy, organizations cannot do so.

12. **New selection of members**. Organizations need to have more capable individuals participating in these endeavors. Before changing the selection criteria or developing appropriate training programs, the challenge becomes one of specifying the most critical issues. These would include, but not be limited to a respecification of competencies needed to perform successfully to virtual organizations such as the ability to effectively communicate with members of the project team, the competency to be comfortably working with teammates both from the same parent company and from a partner.
13. **Cross-business unit mentoring**. The organization must develop new programs that might be uniquely appropriate to virtual organizations. For example, although informal mentoring is encouraged in most organizations, and often limited, formal mentoring programs might exist, examples do not exist whereby these are designed to promote and enhance the use of alliances.

CONCLUSION

Although numerous definitions of the virtual organization abound, we hope that we have created a general sense of not only the key characteristics of them, but also the critical need for research and programs to enhance their effectiveness. The days where individuals in organizations could concentrate solely upon employees who are on their payroll have disappeared, and instead, the management of both those on and off one's direct payroll is the challenge of the 21st century. Some have used the dramatic changes in technology interchangeably with virtual organizations, but the reality is that this has been just one precipitating event.

It should be clear that as traditional boundaries break down, as individuals and groups of individuals move in and out of companies, as we begin to redefine the fundamental nature of communication among participants, we must develop new conceptualizations of what constitutes an organization and, in turn, the associated outcome variables. For example, are variables such as commitment or organizational citizenship behavior within the parent organization important in contemporary firms? Instead, might it be more appropriate to assess individuals' attachment and commitment to both the virtual organization and to the project on which they are working (Mitchell & Lee's [2001] thoughts on job embeddedness might be such an example)? Moreover, should the goal of formal mentoring programs be one of enhancing the career of individuals, or instead, to train them to succeed on tasks in increasingly more complex virtual organizations? Finally, should new variables be developed that compare the proportion of time the organization devotes to alliance-maintaining activities versus task performance?

In sum, the goal of this chapter has been modest. We attempted to provide some clarification of the problem, a description of an exemplar, and a framework in which researchers and practitioners can begin to understand one of the very fundamental issues in a virtual organization. If virtual organizations are to succeed, those who are charged with specifying management and human resource best practices really must develop new models and templates. Only with such tools can we hope to succeed. The complexity of these endeavors call for us to develop robust models that can be flexible, because this is no longer, business as usual. By its very nature, the Internet broke down traditional organizational boundaries of proprietary information and is built upon partnering. Organizations are starting to mirror the Internet's structure, but their successes are hampered by a lack of knowledge about how the pieces need to be put together. Whereas management thought previously emphasized individuals' ties to their organization, these attachments ties, rather than being a virtue, may in fact be a liability because they can undermine working in the new environments. Only by increasing awareness of this, and then having specific programs to alter these models, can virtual organizations hope to work. That is, one potential new area of value added might be the consultant who is charged with monitoring and manipulating the social identities of individuals working in virtual organizations to force them to deal with identities in flux.

Finally, as we move away from the events of September 11, 2001, the criticality of understanding the underpinnings of virtual organizations may become even more clear. It remains to be seen what the effects of this tragedy will have on business, but one of the ancillary consequences may be a persistent concern for security, and this in turn, can lead to a tendency to retreat. This retreat may mean fewer international partners, a reluctance to travel, a nervousness in dealing with any new group; in other words, a perception of risk in associating with anyone outside the traditional organizational boundaries. Despite the more problematic world environment, the fundamental need of growing organizations to form alliances and partners with others will continue to persist. But with a greater reliance upon electronic communication and a nervousness about taking risks, it becomes all the more important to have confidence that these virtual relationships will have a high probability of succeeding.

NOTE

1. We are grateful to Ken Coleman for suggesting the use of the term, "off-payroll," to signify an employee who is working in an organization but is compensated by a different organization.

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CHAPTER 2

HR STRATEGY IN VIRTUAL ORGANIZATIONS

N. Fredric Crandall and Marc J. Wallace, Jr.

ABSTRACT

Information technology has led to the development of virtual organizations and workplaces in the last ten years. The virtual workplace is as different from the industrial workplace as the latter was from the family farm it replaced a century ago. This chapter explores human resources strategies necessary to make the virtual workplace work. First we discuss how we got to virtual organizations and workplaces. We will show how advances in information technology have created demands for changes in organizational structure, process and culture. Next, we define three successive models of the virtual workplace, telecommuting, front-line, and cyberlink, showing how they work and what they require. Third, we will explore how the virtual workplace differs from more traditional organizational arrangements. Finally, we will provide recommendations for getting to the virtual workplace.

AN INCREDIBLE AGE

Economic historians will reflect that our time, at this turn of the Millennium, is the point at which we made the transition from an industrial economy to an information economy. They will note that the information economy is as different in its characteristics from the industrial economy as the latter was

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from the agricultural economy it replaced 100 years ago (see Wacker, Watts et al., 2000). Major features of the information age are virtual organizations. They are economic entities embedded in a common value chain. They have no boundaries and share common processes that begin with materials and information and end in the creation of an unprecedented variety of goods and services—on demand and in an instant. An example of virtual organization is the relationship between WalMart, the retailer, and VF Corporation, the apparel manufacturer. The two organizations are tethered together in a product replenishment process that crosses both firms. Information is common, process is common, and the replenishment team operates in virtual reality with members who are both VF and WalMart employees. The result: quick and accurate replenishment with minimal inventories.

We play in a truly incredible age—where information technology holds the promise of unleashing unheard of levels of productivity, profits, and wealth. This promise will only come true, however, if we can successfully marry people to technology. If we don't, we will fail. Marrying people to technology requires a whole new form of work and organization.

WHAT IS THE VIRTUAL WORKPLACE?

The virtual workplace is defined by "any time, any where" qualities we associate with virtual reality.[1] Specifically, the virtual workplace is a network of people conducting business processes beyond the traditional bounds of organization, time, and space.

Our research has found that there are three progressive types of virtual workplaces:

1. *Telecommuting*—where people work away from the office—often at home;
2. *Front Line*—where people work away from the office, most frequently at a customer's site;
3. *Cyberlink*—where teams of people (employees, customers, suppliers) are linked to the same process in virtual space.

This chapter will explore the virtual workplace and supporting HR strategies. We will:

1. Discuss how we got here—and introduce the model of Organization Technology (OT);
2. Present three models of the Virtual Workplace;
3. Show how the Virtual Workplace differs from more traditional organizational arrangements;
4. Provide recommendations for getting to the Virtual Workplace.

HOW DID WE GET HERE?

Contemporary work organizations have been playing "catch up ball" in response to technological innovation (see, e.g., Crandall & Wallace, 2000). Figure 1 illustrates how organization design has lagged technological innovation over the past 50 years. The upper frame of Figure 1 shows the evolution of information technology. The lower frame shows the organizational responses; that is, how organizations have adapted to support information technology. It shows how organizations have transformed from the onset of the data processing revolution of the 1950s to the eBusiness systems characterizing the information age today. The first steps toward organization change involved the evolution of information management functions within the organization. The evolution of the CIO (chief information officer) illustrates this strategy. By the late 1980s and early 1990s, many organizations took a major step toward transformation by attempting to reorganize themselves around business units, and, more recently, around core business processes. Re-engineering provides an example of the latter (see, e.g., Hammer, 1997). Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) systems are best accompanied by organization arrangements that structure teams around processes that cross traditional functional lines. The example of VF Corporation and Wal-Mart, cited at the beginning of this chapter, illustrates such arrangements.

Technology has moved beyond ERP/CRM technology, however, to eBusiness. It is a world characterized by highly sophisticated systems allowing us to operate in virtual reality. And the process-oriented and cross-functional team arrangements must evolve to new forms of organization. Organization Technology (the science of integrating technology and people) has delivered truly networked organization models to support eBusiness. Such designs must fully incorporate virtual reality into a Virtual Workplace where people are linked to processes beyond the normal bounds of time and space. An example of such a workplace would be Motorola's system for software development where engineers and designers join the process of new product development from dispersed locations around the globe, twenty four hours a day, using virtual reality tools. A second example is the new practice of tele-robotic surgery in the field of medicine where a surgeon in Minnesota directs a robot in Maryland using a virtual reality glove to make incisions and repair organs in a surgical procedure.

What do we mean by organization design? What about organizations must change in order to accommodate virtual reality? Organization Technology indicates that three components of organization must change as illustrated in Figure 2: (1) Structure—how we organize accountabilities,

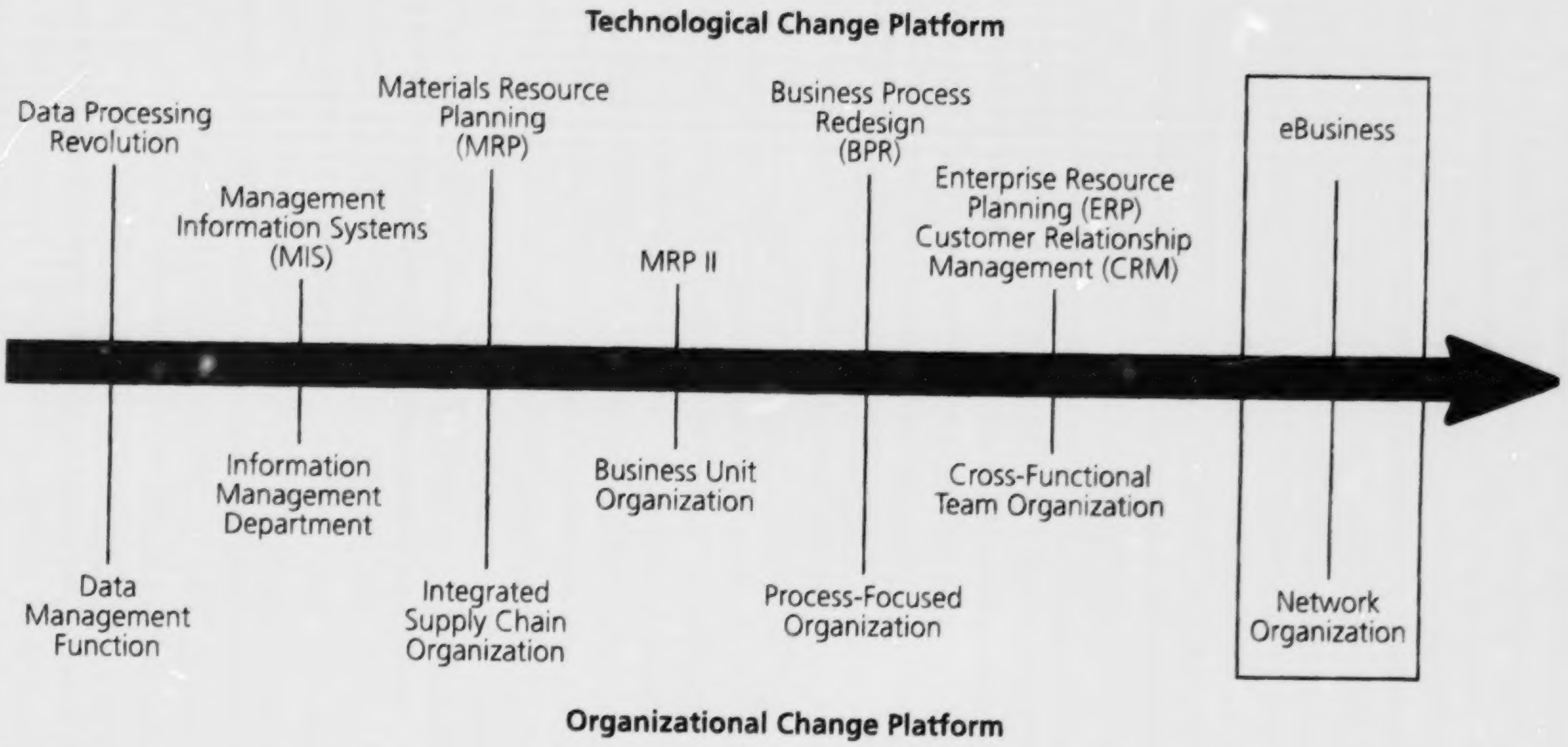
Technological Change Platform
Data Processing Revolution
Management Information Systems (MIS)
Materials Resource Planning (MRP)
MRP II
Business Process Redesign (BPR)
Enterprise Resource Planning (ERP) Customer Relationship Management (CRM)
eBusiness
Data Management Function
Information Management Department
Integrated Supply Chain Organization
Business Unit Organization
Process-Focused Organization
Cross-Functional Team Organization
Network Organization
Organizational Change Platform

Figure 1.

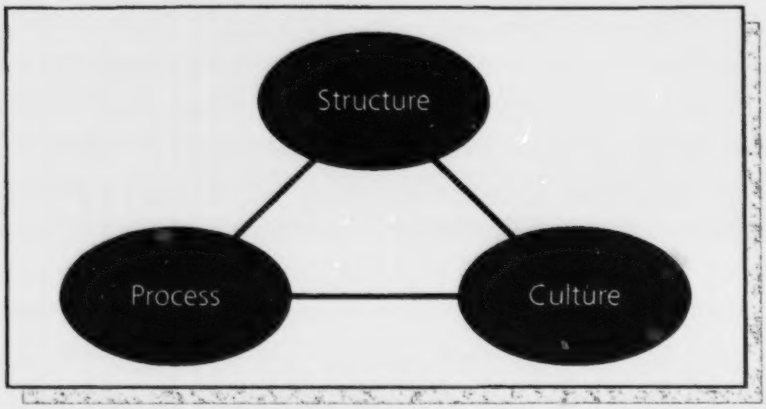

Figure 2. Organization Technology.

(2) Process—the core processes defining what the organization does, and (3) Culture—that values, styles, and rewards that characterize the organization and support core processes. Organization Technology, then, defines the Virtual Workplace by indicating what structure, process, and culture must look like to successfully integrate people with technology.

We will delve more deeply into how the virtual workplace differs from more traditional organization design later. But first, let's look at three progressive manifestations of the Virtual Work Place.

MODELS OF THE VIRTUAL WORKPLACE

CWE's research shows that models of the virtual workplace have come through three progressive manifestations: the telecommuting model, the front line model and the cyberlink model (Crandall & Wallace, 2000).

The Telecommuting Model

Telecommuting is any arrangement, formal or informal, which traditionally-employed individuals have with their employer that enables them to work out of their home, a telecommuting center or a satellite office on an occasional or regular basis (Crandall & Wallace, 2000). Typically, that means anywhere from one-to-three days a week. For very progressive organizations, however, it can mean five days a week, every week. There are currently two phases of telecommuting. Organizations in the first phase are experimenting with telecommuting because employees have requested that they do so. These companies are allowing a handful of individual employees—or specific groups of workers—to work from home or from a telecommuting center or satellite office once or twice a week. Organizations in the second phase of the telecommuting workplace are experimenting with telecommuting because senior management has determined that it makes good business sense. These organizations are willing to consider five-day-a-week telecommuting arrangements and other types of alternative work systems, and are interested in implementing this virtual workplace corporate-wide.

Phase I of the telecommuting workplace—the more common of the two—can be a dead-end because their experimenters are only thinking in terms of today. They typically offer this "flexible" work arrangement only to individual employees who've requested it, and they consider the arrangement to be a "benefit" they're providing employees. Because these organizations consider telecommuting to be an infrequently offered employee benefit, applications of the workplace are small and scattered, quietly implemented, undocumented and unleveraged. When the telecommuter quits or retires, the telecommuting arrangement is also retired. The strategic implications of the workplace—and its bottom line benefits to the company—are neither recognized nor studied.

Historically, the telecommuting movement has been driven by employees, not senior management. Larry Barrett, managing director of the International Teleconferencing Association's Telecommuting and Telework division in McLean, VA, notes that "Employees hear about it, investigate it and collectively put pressure on human resources or alternative work arrangement management to do it." As a bottom-up movement, traditional telecommuting arrangements—doled out as a "benefit" to employees—haven't saved or generated significant amounts of money.

Telecommuters are typically employees who've been with a company for a while and have a need for increased flexibility in their work arrangements. Sometimes, they need flexibility to manage a care-giving situation; other times, there's a need to meet deadlines and be able to work for long, uninterrupted periods. Still other times, as at the former GTE Corporation, a telecommuting situation arises from a highly valued employee's wish to continue working with the company in spite of a spouse's relocation. "We have a very outstanding employee who said, 'If I couldn't telecommute, I couldn't do my job with GTE,'" relays Francine Riley, former director of workforce diversity. "She loves her job, and she loves her husband and family, but they live out on a farm, and she has a couple of hours commute each way. Her husband farms and works a second job until 11-11:30 p.m. Now, the employee works from home three days a week, and she and her son and her husband have time together in the morning." Telecommuting was a way for this longtime employee to keep her job. It was also a way for GTE to retain a highly valued employee. Says Riley, "Telecommuting allows her to lead the life she wants to where she wants to and still do her job."

Most telecommuters work at home or at a satellite office or telecommuting center between one and three days a week. However, there are certain interactions that need to be handled in person. Faxes and conference calls don't replace human contact, the absence of which can reduce relationships and human trust. In fact, building trust between managers and employees is one of the biggest challenges in implementing a telecommuting program. Managers who are accustomed to managing by walking around and observing employees are suddenly faced with a dilemma: How can I manage what I can't see? And, if I do let her stay home, she may cheat me and the company out of time and work! The thing to remember here is that true control doesn't come from face-to-face contact, it comes from an employee's sense of personal ownership of the business process and its results. If a manager really wants to control employees, he or she should work with them until they take personal ownership of their jobs and feel rewarded by getting it done on time.

Other common challenges to telecommuting include:

- **Communication.** Managers and employees are afraid of losing the informal, "water-cooler" conversations they've come to take for granted, and the open-door office policy that enables them to interrupt anybody anytime. These informal communications methods need to be replaced, to some degree, by regular, scheduled telephone conversations, email communication and periodic, scheduled, face-to-face meetings. Telecommuting and other virtual workplace arrangements suffer most from people's inability to structure communications efforts that have always been taken care of informally (and not necessarily well), and to use the technology that's available to keep the lines of communication open and flowing both ways.
- **Measuring work by standards other than time.** Telecommuters' work must be evaluated in terms of measurable standards, such as their ability to meet project goals and deadlines and produce work that meets predetermined quality standards. Telecommuting should be supported by a performance management program that defines performance and development objectives and measurements upfront and then uses email, telephone, fax, and face-to-face meetings to provide ongoing coaching and feedback.
- **Maintaining and supporting teams.** Just because some of the employees are off-site occasionally or permanently doesn't mean work teams can't thrive. Teams, like individuals, can communicate

via electronic media, meet regularly face-to-face, pass work around via electronic media, talk on the telephone, etc.

- **The legal issues: Where does the workplace begin and end?** Consultants and association executives say the legal issue of corporate liability is no higher in a home office than in a corporate office. "The fears raised are far out of proportion to reality," asserts Gil Gordon, a telecommuting expert. "It's a minimal risk that can be very well managed using common sense." Elaine Fox, a labor attorney with D'Ancona & Pflaum in Chicago, agrees. "A lot of this is quickly evolving, I don't think there's been any definition of where the workplace really is."
- **Union opposition.** It may be difficult to overcome union opposition to telecommuting, since unions still remember the abusive practices of "home work" suffered largely by immigrant women in the early days of New York's garment industry. Unions also have another reason for opposing off-site work: employees who work off-site in their own private offices are more difficult to organize. Our suggestion to union officials is this: Recognize that virtual organizations are here to stay and find different ways to communicate with members and prospective members. Remember, there's little risk of employees suffering at the hands of employers who force them into telecommuting relationships. Most often, these work arrangements are offered to salaried employees, provided with full benefits, that are empowered to do their jobs and generally set their own hours.
- **Coping with the Fair Labor Standards Act (FLSA, 1938).** Though this act has strict provisions about overtime compensation, time can be tracked off-site in the same was as in the office, by having employees enter their time on a time sheet or computer system.
- **Real estate factor.** Strategically, companies are beginning to look increasingly at telecommuting programs for cost savings and revenue generation. Real estate savings comes when companies cut the ratio of physical workstations to employees. Traditionally, the ratio of workstations to employees has been 1:1, in other words, one employee: one workstation. Now, some companies are shifting the ratio to 1:5, and even 1:10. This is being accomplished through systems like shared officing, or "hoteling." Through a hoteling system, employees reserve space when they know they'll be in the office. That means a telecommuter with a fixed schedule might reserve an office every Monday, Tuesday, and Friday. The office or workspace the telecommuter uses each time might be different; but the facilities—a computer, a telephone, a fax machine, a copy machine, etc.—remain constant. A telecommuter with a flexible schedule would

have to reserve space ahead of time when he or she plans a trip into the office.

The concept of shared officing is a less drastic way to reduce the physical space in the office. It gives employees a bit more of that comfortable, traditional feeling of "spatial ownership" than does hoteling. Organizations that employ the concept of shared officing might arrange for two or more employees to share a given workspace, each coming to the office at different times during the week.

These arrangements have quite an impact on the bottom line. Michael Bell, a telecommuting real estate expert for Dun & Bradstreet notes, "Most organizations think in terms of 220 to 300 gross square feet per employee when they rent or buy office space. In the United States, central district office space costs an average of $20 per square foot. That means companies are spending about $4,400 (a conservative estimate) per employee for physical space alone. When you consider the cost of ancillary support systems (technology, office support, etc.), which average between $8,000 to $10,000 per employee per year, you're talking about minimum spatial costs of about $14,440 annually per employee—a hefty chunk of change."

The Front Line Model

For customers, on-time, on-line service translates into more face-to-face interaction with service providers and more client-needs-centered assistance (see Crandall & Wallace, 2000). This type of service is of far greater value to customers than the traditional segmented sales and service approach. It is delivered by people who know what their clients want because they often work on-the-job with the client in the client's own place of business.

But what does it mean for organizations? For one thing, it means seriously leveraging technology to maximize its use of people. They're moving sales and service front line employees out of the office and into the field to work from remote locations, mobile offices, customer locations, and just about anywhere else. They're cutting real estate costs and adding some technological ones. Most important, they're realizing significant boosts in customer satisfaction and retention *and* employee satisfaction and performance, and those results alone, though difficult to quantify, are worth the costs associated with the workforce shift.

A Frontline Case Study: IBM.

In the early '90s, says Andréa J. Cheatham, a business unit executive with IBM's Workforce Mobility Transformation Services and the former project manager for IBM's first virtual office, "We started looking at how we might enhance overall customer satisfaction and employee productivity." At the same time, she continues, "we had a real estate consideration: Our lease was about to expire. In questioning whether we really needed another big office, we realized that, with one of our goals being to increase face-to-face customer contact, the answer was 'no.' "

IBM decided to experiment with ways to reduce the need for sales and service employees to come into the office. It launched the first pilot of its now widespread, virtual office "Mobility" program in 1992, in the company's Norfolk, VA, marketing and service office. The initial switch to the virtual environment involved 58 marketing and service employees and took about eight months to implement. Hallmarks of the program included workspace sharing, increased face time with customers and decreased cycle time to get information back to the customer.

The pilot was so successful that requests for similar arrangements came pouring in from IBM sales offices nationwide. Employees loved Mobility because of the flexibility and customers loved it because their sales and service representatives were immediately more tuned into their needs and more responsive. In fact, customer response has been so positive that, in 1995, IBM decided to launch a consulting service aimed at helping its customers make their own conversion to a virtual office environment.

Today, more than 20,000 employees in IBM's national sales force operate within the context of the frontline arrangement. The result? By implementing a shared office plan with a 10:1 ratio of employees to office space, the company has reduced its real estate requirements by 40 to 60% across the country. It has also increased employee productivity by 15% in two years and increased customer face-time by six hours per employee per week.

While some companies hand imperatives down from the top, IBM decided on a high employee involvement approach. For the pilot, says Cheatham, "We pulled together a cross-functional team of employees within the [Norfolk] office . . . and conducted an electronic brainstorming session aimed at addressing customer satisfaction, employee productivity and real estate concerns." Right away the team decided that a bigger office wasn't the answer to the company's problems. Instead, it determined, the company could increase customer face time and hopefully increase employee productivity by shifting employees' focus from the physical office to the customer site. That meant packing employees up and getting them on the road.

To that end, IBM equipped sales and service personnel with the appropriate package of technology tools and developed a support structure back at the office to help off-site employees secure the additional assistance they might need. By fully equipping employees with the latest technology, IBM relieved its sales force of the need to travel into the office for other than just housekeeping matters. Sales and service employees participating in the pilot were able to use the company's technologies—the same solutions they were marketing to customers—to answer customers' questions and take care of business wherever they were . . . at a customer site, in an airport or at home.

Both the remote work arrangements and the team planning concept worked well for IBM. For that reason, as the Mobility program was extended to other sales and service sites nationwide, a second cross-functional team of employees was assembled to head the implementation.

One key to the program's success, suggests Cheatham, is "meticulous" documentation. "IBM has produced an extensive manual that covers every conceivable aspect of a conversion to a virtual office," says Cheatham. The manual is the result of brainstorming and planning efforts of representatives from seven disciplines within the organization: Human Resources; telephone systems; technology; real estate; the legal department; business planning; and process planning.

A standardized course of training helps get all employees off to a good start in the virtual environment. The company introduces employees to the new work arrangement through a four-to-six hour course of instruction. Among other things, employees are taught to use a laptop computer and to access information remotely. In anticipation of questions that might arise regarding the technology they're given to work with, IBM equipped its laptops with a plethora of "most commonly-asked" questions and answers.

Communications, too, has become more structured—in a flexible way. Because people are in different places at different times, more forethought has had to be given to the need to meet on a regular basis to touch base and share experiences. Possible locations for meetings, however, have broadened considerably. Says Cheatham, "Prior to the advent of the virtual sales office, teams were convened regularly in centralized spots around the country for local, regional and national meetings. These days, by contrast, managers are more likely to conduct their staff meetings in flexible locations: restaurants, hotels and even customer sites."

IBM also makes use of tele- and video-conferencing modes of communication, says Cheatham. "People have learned to compensate. They don't have to have the face-to-face interaction that was once required."

Lessons Learned. Success depends largely on the ability to be flexible and learn from mistakes. You must each create a program that fits their organization's needs—and modify that program where and when necessary. Experienced front-liners offer these words of wisdom and suggestions:

- **Beware of some supervisors' tendency to keep managing traditionally, rewarding employees who *appear* to work hard and spend many hours on the job.** To manage successfully in the virtual environment, leaders must have the self-confidence and comfort level needed to challenge employees to do great things—and then get out of their way. They must let their employees determine how to best achieve the goals set before them and manage employee output, not input. Helping managers make the transition from managing by line-of-sight to managing goal attainment and results is a common challenge in this model.

- **Focus on education.** Employees have different technological and interpersonal skills, and it's difficult to know where training needs lie. Do you need to spend more time training employees to use laptops to remotely access the company's database, or are employees' time management skills poor? Maybe you should devote extra time to partnering with customers? The best way to avoid education and training pitfalls is to do a training needs analysis that involves employees and managers. Develop an understanding of your workforce's basic training needs first—in all areas—and plan to meet more advanced training needs later on.
- **Offer technological support.** Though most of the companies we've interviewed have sophisticated technology in place to support their virtual workplace efforts, many still struggle with issues like concurrent, remote requests for data that overload the system and off-site mechanical failures that require immediate attention. At AT&T, for example, it soon became clear that internal operating systems had to be dramatically altered to accommodate the needs of a remote sales force. And when a salesperson in the field has a mechanical problem with his or her equipment, you need to have a support plan in place that enables the sales force to access help immediately when their machine isn't working.
- **Beware of shallow commitments to virtual work arrangements.** Though virtual arrangements spark enthusiasm at first, particularly in employees, enthusiasm can diminish or die as work roles are redefined and the realities of virtual work—for example, isolation and autonomy—are experienced. Two things must be considered here: (1) It's possible that some of the people who are experiencing a loss of commitment to the virtual work arrangement are simply not cut out for nontraditional work. It requires employees to be highly-organized and self-motivated. These employees may be more comfortable in a traditional office setting. (2) For those who work well remotely but don't know how to deal with feelings of isolation, scheduling face-to-face meetings with coworkers and teams, meeting on-line for a quick chat and having more frequent conference calls may be helpful.
- **Keep informal knowledge transfer alive.** When employees work from locations other than the office, opportunities for informal con-

versation among employees can be limited or lost. That can be a blow to teamwork. It can also mean the end of business opportunities that come from day-to-day networking. But it doesn't have to mean any of that. The key is to replace the "informal" chats with "formal" ones that take place over the Internet, during brown-bag teleconference lunches and in planned, face-to-face meetings on the road. These more formal communications methods, though they seem foreign at first, can actually *increase* knowledge sharing between larger and more diverse groups of employees.

- **Ease the paradigm shift caused by sharing office space.** It's easy to disregard the feelings engendered by a loss of spatial ownership in the virtual environment, but those feelings can present challenges. Another, seemingly minor issue for employees sharing office space to come to grips with is the need to physically end the work day at the same time that they mentally end it.

The Cyberlink Model

The cyberlink workplace is the most customer-focused embodiment of the virtual workplace. It's found wherever teams involving customers, suppliers and/or producers form to manage work collaboratively. In a cyberlink workplace, teams of customers, suppliers and producers work together face-to-face and in cyberspace to realize a product or service goal. When business opportunities have been fully realized, these teams may disband, and individuals from the team form new teams with other customers, producers and suppliers to work on other projects.

The Cyberlink workplace is more than customer-focused; it's customer dependent. The goal of the workplace is to capture the hearts and minds of the customer and encourage repeat business, longer-term contracts and, ultimately, ongoing partnerships. With the cyberlink workplace, the customer is a key part of the process of manufacturing goods and ideas. The customer's needs, goals and challenges actually drive his or her supplier's business, because customer satisfaction and loyalty are key to corporate survival.

Organizations that implement the cyberlink workplace are truly externally focused. Inside the organization, employees are driven by process, not by function or job title. They work with customers to ensure satisfaction from the beginning of the relationship to the end.

While the cyberlink workplace requires organizations to restructure their cultures and work systems, it yields great results for the effort. Employers who've implemented this workplace have seen:

- A new, corporate-wide focus on speed of execution. The emphasis on speed can be seen in areas like customer service and new product development, as well as in internal corporate communications.
- A shared sense of strategy and purpose develop among all employees. The customer-orientation typical of this workplace unites employees and helps bring an organization's vision and values to the foreground. Employees, whose jobs have become centered around serving the customer, have more clearly-articulated roles, responsibilities and accountabilities.
- The emergence of a truly empowered workforce. Decision-making shifts from managers and supervisors to employees, who are closest to the customer; around whom work is actually centered. Managers and supervisors are no longer being perceived as decision-makers. Instead, they are coaches and facilitators of the process of serving customers.
- Teams of employees from all areas of the organization being compensated with reward systems that are closely aligned to the company's key strategies, goals and revenues.
- Communication, largely as a result of advanced information technology systems (like email, town meetings, groupware, etc.), being more open, timely, candid, and ongoing—across functions. Customers are often invited to participate in electronic and face-to-face problem-solving sessions.
- Teams managing and directing themselves. Fewer managers and supervisors are needed. Team leaders are emerging and acting as facilitators of group problem-solving processes.
- The electronic sharing of information, combined with the shift in roles, responsibilities and work paradigms, leading employees, customers and suppliers to think "outside the box." New business opportunities, new products, new markets, and new services have been the result.

A Cyberlink Workplace Case Study: ROSS/FLEX

It's one thing to be closer to the customer, working on-site and really learning his or her business so that you can communicate his or her needs more effectively to your own company. But how does it work when the customer is actually *on* the team—or leading it? This is exactly what Ross Valve Company did. The company's ROSS/FLEX process, a process by which the customer *is* the lead designer on the team, constitutes more than 20% of its total business (up from zero in 1990), and has helped the company grow its standard business more than 75% since 1990. ROSS/FLEX is literally a process by which a customer works with an engineer and a vertical specialist (a salesperson/resource person who specializes in a particular industry) to create his or her own valve, specific to the architecture of the machinery that he or she is trying to build or use.

"The design engineer takes the customer's wants and turns them into a product that they can look at together by fax or modem," explains David Ross, director of North American marketing for the manufacturer of pneumatic control valves, based in Troy, Michigan. "By looking at the envelope or outside designs, the customer can change or reconfigure his prototype at will."

This market-creating or virtual prototyping piece of our business allows the customer to have what he wants very rapidly, says Ross. "The vertical specialist, design engineer and customer are working together and are connected intimately throughout the project. Essentially, we are creating products the customer wants virtually at his doorstep, much like one would order a pizza." Depending on the complexity of the project, it takes Ross engineers two days to a week to develop a prototype the customer can put his or her hands on.

The ROSS/FLEX process was launched in 1990 at the company's Lavonia, GA plant. "The arrangement had its original thinking in Henry Duigman, Ross' former chief operating officer (since retired), who had a vision of manufacturing in America," says Ross. "Duigman felt that customers had limited choices, and that standard manufacturing practices didn't give them what they were looking for . . . It took him a few years to get us turned around from a company that felt 'you can do business with us as long as you do it our way' to a company that was truly customer-focused."

Today, Ross Control is so customer-focused that the customer is leading the design team. How did they do it? "There's nothing super-rocket science about it," says Ross, "It's all commercially-available equipment, and any good engineering school can produce engineers to man the equipment." The key, he says, is that Ross Control hires new graduates of engineering schools—individuals with no preconceptions of what it's like to be an engineer and no bias regarding the process by which products are designed. "Even though they have counterparts on the other end of the company who design traditionally, ROSS/FLEX engineers do not design traditionally. They'd be frustrated quickly to work on new standard projects that would take months to develop."

But the company's success is due to more than just strategic hiring, says Ross. "We've invested heavily in efforts to change the culture of marketing, engineering and manufacturing from individual, separate functions to a holistic approach to doing business," he says. With that goal in mind, traditional salespeople slated to work within the ROSS/FLEX process traded in their geographic responsibilities for industry-specific ones, based on their own particular interests. "They now have the responsibility and authority to travel wherever their industry requires," says Ross. "By doing this, they become so intimate with their industry and so well known at customer plants and headquarters that they are widely accepted as experts in the field."

In addition to being encouraged to pursue their industry-specific interests, vertical marketing specialists have been given the opportunity to do what all salespeople dream to: go out and convince customers that they can have anything they want. "As soon as customers began taking advantage of the process," says Ross, "Customers owned it. The 'sale' was over."

To make the ROSS/FLEX process truly holistic, employees from all functions are encouraged to look over each other's shoulders and appreciate the full scope of the projects they undertake, Ross says: engineers go on sales calls, salespeople sit in front of engineers' terminals and machinists sit up with design engineers.

This holistic approach, though difficult to achieve, has been proven to work well inside and outside the company. "If you connect the three parties (the customer, the vertical marketing specialist and the engineer), the relationship is better than if you insulate and isolate the three parties," says Ross. "When the customer is isolated, he has no one to feel close with. He can only look at the end result, and he doesn't see and understand the value of the product that was produced for him. He thinks it's something he has to shop around and compare to. "When the customer is integrated, he knows his ideas are being passed to an engineer and he has ownership of the project."

Because it integrates advanced technology with people from the customer, supplier and producer, the Cyberlink model has reaped magnificent rewards for manufacturing and service organizations nationwide.

Speed and efficiency, as Ross Control has discovered, leads to deeper, better relationships with customers. The ROSS/FLEX process, however, has also directly benefitted the bottom line, giving the company, among other things:

- A research and development division that is paid for by customers (since some of the customer designed products go on to become standard offerings at the pneumatic valve company);
- And a business on top of their off-the-shelf product line that today, after just five years, generates 20% of the private company's annual revenues.

HOW THE VIRTUAL WORKPLACE DIFFERS FROM A TRADITIONAL WORKPLACE

The three dimensions of organization design (mentioned earlier), structure, process, and culture provide the framework for understanding the virtual workplace. We will examine each in turn.

Structure

Structure refers to the allocation of roles and accountabilities in an organization. Organization charts and job descriptions often represent structure. Table 1 summarizes the major differences.

Table 1. Structure Differences Between Traditional and Virtual Workplace

Element	*From Traditional Vertical...*	*To Virtual Network...*
Structure	• Command and control • Functional Hierarchy	• Self-Managed Virtual Networks
Teams	• In Person • Ad-Hoc/Temporary	• Virtual • Self-Managed

We characterize the move from traditional to virtual organization design as a shift from vertical to virtual. Command and control hierarchies arranged according to primary functions (e.g., sales, manufacturing, accounting) are the chief characteristics of an industrial organization. If teams exist, in addition, they tend to demand in-person contact and tend to be ad hoc and temporary in nature.

Virtual networks, in contrast, are the main distinguishing characteristic of a virtual organization. Networks, furthermore, are arranged around entire business processes (such as supply chain or customer fulfillment) that cross traditional functional lines (like sales and customer service). Individuals represent diverse skill sets are focused as a team on one entire business process people them. Electronic information technology allows team members to join the process at any time from anywhere to add value. Such teams are not supervised so much as they are coached. They are largely self-managed.

Process

Virtual workplaces also differ with respect to process. Table 2 summaries the primary differences between virtual and traditional workplaces on this dimension.

Table 2. Process Differences Between Traditional and Virtual Workplace

Element	*From Traditional Vertical…*	*To Virtual Network…*
Jobs	• Narrow Duties	• Broad-Based Duties
Skills/Competencies	• Functional Skills	• Cross Functional Skills • Team Skills
Performance	• Position/Job	• System/Network

A traditional workplace defines work as performed in a number of jobs, each defined by a narrow set of duties or tasks. One doesn't normally work outside one's job description. Thus, employees tend not to think beyond their immediate tasks. A virtual workplace, in contrast, requires everyone to understand and operate an entire business process. Thus, a virtual workplace is far broader and fluid in its definition of work. Team members occupy roles, defined by broad sets of skills or competencies embracing an entire process.

A virtual workplace demands a whole new set of skills and competencies. At one level, employees in the virtual workplace must broaden their skill set to enable them two take processes from start to finish. At higher level, they will be required to conduct team activities and support a process. Thus, resolving conflicts and routine maintenance activities are added requirements. Finally, the virtual workplace demands that employees think and act at a systems level. Thus, they must know the core economics of the business, they must know who customers are and what they need.

Finally, the way performance is defined, managed and evaluated must change dramatically. Traditional organizations defined performance accountabilities in terms of narrow job duties. Training focused narrowly on the job and was evaluated in terms of the same tasks. The virtual workplace demands that performance accountability be defined at a much higher and broader level. Performance must be managed toward improved business performance, not supervisory ratings.

Culture

Culture encompases a number of dimensions including learning, information, power, leadership, and rewards. Table 3 contrasts traditional and virtual workplaces on these factors.

Table 3. Culture Differences between Traditional and Virtual Workplace

Element	*From Traditional Vertical…*	*To Virtual Network…*
Learning	• Narrow Duties	• Broad-Based Duties
Information	• Functional Skills	• Cross Functional Skills
		• Team Skills
Power	• Position in Hierarchy	• Role in Business Process
Leadership	• Command and Control	• Self-managed
Rewards	• Job-based	• Value-based

Learning becomes much more pervasive in the virtual workplace. Employees are narrowly trained in a traditional workplace. Training tends to be formal, focused on immediate job tasks and of short duration. A virtual workplace in contrast requires broad and continuous learning. Changing processes and continuous improvement demand that learning be built into work and occur on a real-time basis.

Information is power in traditional organizations. It is restricted and controlled on a need to know basis. Information technology in the virtual workplace makes information immediate and dispersed to all. The result is to empower people and operate processes at the speed of thought.

Power distribution and authority lie at the heart of traditional organization. One's power derives from the level of one's job in a steep hierarchy. The virtual workplace, in contrast, is flat. There are very few levels across which to distribute traditional power. In the virtual workplace, then, power derives not from position but from expertise, competencies, and ability to influence core business processes.

Leadership in a traditional organization supervises work closely. Employees perform on relatively short leashes with little opportunity for discretion (see Jaques, 1997). No organization has the resources to lead in this fashion when processes occur at speeds expected in the information age. Leadership must transform to a style characterized by coaching and empowerment. Leaders in the virtual workplace invest a great deal in the development of competencies to conduct work without close supervision. Employees are empowered to work for great lengths of time and affect high levels of resources. The role of the leader shifts toward defining goals in terms of long-term mission, vision, and values. He or she also provides the resources necessary to work. Such a leadership style requires trust.

Rewards in traditional workplaces are largely a matter of entitlement and accrue based primarily on loyalty and longevity. By far the largest component of pay in a traditional workplace, for example, is base pay. The size of one's base pay depends upon the highest level of job to which one is promoted and time in grade. The virtual workplace evidences a much different picture. The mix of skills and competencies one puts to use drives base pay—not position. A greater proportion of pay, in addition, is variable, tied to achieving and surpassing business goals. Traditional organizations place high importance on position. The virtual workplace, in contrast, places highest importance on value creation.

GETTING TO THE VIRTUAL WORKPLACE

How difficult is the transition to the virtual workplace? How do we know that we've made it? What are the major pitfalls? What steps can leaders take to avoid those pitfalls?

Most organizations we have studied have reported that the path to the virtual workplace was more difficult than expected. We have developed a scorecard to assess the degree to which the journey has been successful. It consists of five questions:

1. Are employees aware of the virtual workplace?
2. Do they "get it?" Do they understand the new technologies of the virtual workplace and how they can improve performance?
3. Do they adapt to the new arrangements and make appropriate changes in the way they go about their work?
4. Are virtual workplace arrangements (including new technology) being used as intended? Or are people clinging to and using legacy systems in parallel?
5. Are we getting the expected productivity increases and financial results?

Our research suggests that the answer is "yes" to these five questions only about 67% of the time. Moving to the virtual workplace entails a risk of 33% that the effort will not be successful. Following are steps that will improve chances for a successful transition to the virtual workplace:

1. Prepare the organization for change. The virtual workplace is not just technological change. You must make appropriate changes in organization structure, process and culture for success.

2. Assess and develop the skills and competencies people will need in the new work environment. They include process, team, and customer skills.
3. Prepare leaders. Take the time to assess current weaknesses and provide the resources for developing coaching and long term planning skills on the part of managers.
4. Redefine rewards systems. Develop a strategy that creates incentives for people to develop and apply the competencies they will need. Create variable pay programs that make business partners out of employees.
5. Invest heavily in training and development. The virtual workplace requires that you make learning part of everyday life in the organization. Create jobs that allow people to learn continuously in real time.

NOTE

1. Definitions, models, and descriptions of the virtual workplace draw upon and appear in Crandall and Wallace (1998).

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Part II

HRM PROGRAM DELIVERY

The focus of this part of the book is how human resource management programs are best delivered in virtual organizations. Attention is given to both how the human resource system should be organized in virtual organizations and the new roles that human resource management professionals can be expected to play in virtual organizations. McClendon, Klaas, and Gainey (Chapter 3) provide an analysis of when and how outsourcing should be used by the human resource management function in organizations. Snell, Stueber, and Lepak (Chapter 4) define the concept of a virtual HR department and describe how Merck Pharmaceuticals is creating a virtual HR department. Ulrich and Beatty (Chapter 5) describe several new roles that HRM professionals will be required to perform in virtual organizations: Coach, architect, designer, and deliverer, facilitator, and leader.

CHAPTER 3

HR OUTSOURCING AND THE VIRTUAL ORGANIZATION

John McClendon, Brian S. Klaas, and Thomas W. Gainey

ABSTRACT

Consistent with the increased use of outsourcing in organizations generally, employers are also increasingly using outside vendors to provide human resource services that were traditionally performed in-house. This paper reviews what is known about why firms outsource HR activities, the effects of HR outsourcing, and the different ways that outsourcing is being used in the HR area. It then reviews relevant theoretical perspectives in order to identify conditions under which firms are most likely to benefit from outsourcing. Finally, the paper offers recommendations for managing the outsourcing process in the HR area as well as for how future research might contribute to our understanding of when HR outsourcing should be used and how to manage vendor-client relationships in the HR area.

INTRODUCTION

Outsourcing—ranging from the use of outside vendors for information technology services to manufacturing parts—is increasingly being viewed as a way of reshaping organizations to enhance flexibility, reduce costs, and acquire specialized expertise (Gay & Essinger, 2000). This expanding use of outsourcing has been so significant that some predict that the traditional integrated corporate organization will soon be displaced by virtual organizations that are more focused, fast, and nimble (Christensen, 2000). Consistent with the general increase in outsourcing overall, employers are also increasingly using outside vendors to perform human resource activities that were traditionally handled in-house (*HR Focus*, 2000). Some surveys indicate that more than 70% of companies currently use outside firms to handle some HR activities (Mobley, 2000) and that HR represents the fastest growing area for outsourcing (Gay & Essinger, 2000).

Because of stronger incentives associated with market competition, many suggest that HR outsourcing offers advantages that improve firm performance and competitive advantage. Among the advantages cited include cost reduction through improved economies of scale, greater flexibility, better acquisition of specialized expertise, and more focus on core competencies (Csoko, 1995; Greer, Youngblood, & Gray, 1999; Mobley, 2000). Others, however, are more cautious about the impact of HR outsourcing. It is also suggested that HR outsourcing may limit the ability to develop distinctive competencies as well as hurt performance due to a one-size-fits-all standardization that does not fit the firm's strategy and unique needs (Christensen, 2000; Ulrich, 1997). As a result, although there is much evidence that effective HR management plays an important role in firm performance (Becker & Gerhart, 1996; Huselid, 1995), there is considerable disagreement about the benefits of outsourcing of HR activities (Klaas, McClendon, & Gainey, 1999).

Given the importance and uncertainty of this emerging trend, it is not surprising that HR outsourcing presents many questions regarding its use and benefits, including: Which HR activities are most likely to be outsourced? How do organizations differ in their reliance on HR outsourcing? Is HR outsourcing a passing fad or does it represent a permanent change in the design and delivery of HR? How are firms likely to differ in their ability to realize the benefits of HR outsourcing? For employers who outsource HR, what are the keys to managing the process? In this chapter we attempt to address what is known about these questions by reviewing the best available evidence regarding HR outsourcing use. We then draw on this knowledge to develop a framework for determining whether and how a firm should utilize outsourcing in the HR area. Finally, we discuss how future research might contribute to a better understanding of outsourcing and its impact.

OUTSOURCING STRATEGIES AND ALTERNATIVE ROLES FOR THE HR VENDOR

While an increased reliance on outsourcing is being observed across organizations large and small, there is substantial variation across firms in the strategy employed to guide the outsourcing process and what activities are actually outsourced. Some firms limit HR outsourcing to the delivery of routine administrative tasks, whereas others outsource activities that are more strategic. Still others outsource the entire design and delivery of HR services and programs. With each approach to outsourcing, the HR vendor will be asked to play very different roles. We believe that when examining the use and impact of outsourcing, it is important to delineate among these different roles. We classify vendor roles into three categories: HR designer/strategist role, HR provider role, and the professional provider organization role.

HR Designer/Strategist

The HR designer/strategist role is similar to the traditional consulting role and involves the use of experts who provide advice in HR program design or conduct trouble shooting on specific HR problems (Jeffay, Bohannon, & Laspisa, 1997). HR Designer/strategist outsourcing may include an ad hoc service of assessing and developing HR programs and action plans or, conversely, the client-provider relationship may operate on a long-term contractual basis. In addition, the service may be restricted to a single HR activity or it may involve a more comprehensive relationship where the vendor provides advisory services across a set of HR functions. With respect to HR activities, this role may include the development of any HR function, ranging from compensation system to performance management system design. By focusing on the design of HR practices and strategies, this form of outsourcing is distinguished from other approaches in that HR processes and transactions are not provided. As such, acquiring expert knowledge—as opposed to cost and efficiency considerations—is likely to be the key motive for outsourcing this role.

Outsourcing the designer/strategist role relates to the bigger issue concerning the strategic nature of HR management. Many argue that the HR practitioner should be more of a business partner and change agent (Ulrich, 1997). To the degree HR functions as a business partner, it must understand the firm's product or service, who the typical customers are, and how the firm is positioned competitively (Milkovich & Boudreau, 1997). Because it is important that HR operates as a business partner, outsourcing activities that involve close integration with the firm can present special challenges and risks, especially for HR activities that must be closely tailored to the firm's unique needs. This need for tailoring activities to each firm's situation may also limit the ability to gain cost savings through economies of scale (Jaffey et al., 1997).

HR Provider

The provider role accounts for most of the traditional HR activity in the typical firm and involves the administration of a broad array of traditional HR activities. While the provider role can involve the delivery of any one of a host of HR functions, it will likely be concentrated in routine transactional and specialized activities such as payroll and benefits (Klaas & McClendon, 1997). The transactional and specialist nature of this role—in contrast to the designer/strategist role—includes many HR activities that can be standardized across firms, allowing for cost reduction through improved economies of scale. Although this form of outsourcing sometimes involves a single vendor providing comprehensive services, companies frequently carve out pieces of the provider role to different outsourcing firms. However, as with the designer/strategist role, this ad hoc approach may result in fragmented outsourcing that inhibits optimal integration of HR activities (Jeffay et al., 1997).

In addition to the fact that this role is more likely to involve activities that can be standardized, the provider role differs from the designer/strategist role in two other respects. First, while the designer/strategist advises clients in creating practices and polices, the provider role focuses on delivery and administration. Second, in contrast to system design, the delivery of traditional HR activities is unlikely to involve strategic level tasks.

Professional Employer Organizations (PEO's)

The final category for HR vendors is the professional employer organization (PEO). When firms use a PEO, a co-employer relationship is formed through contractual means. As a result of the contractual agreement, the client maintains control over their workplaces and production, while the PEO becomes the employer of record and assumes responsibility for most of the HR functions (Hirschman, 1997, 2000). The PEO handles payroll, provides and administers a benefits package, ensures compliance with regulations, helps develop safety programs, and provides a host of additional services and trouble shooting assistance that helps manage the client's workforce (Cook, 1999; NAPEO, 2000). Traditionally, this form of outsourcing has been used primarily by small and medium-sized firms.

Because of the unique challenges faced by such firms in managing HR, the benefits available from PEO utilization are likely to be particularly attractive to smaller organizations.

THE INCENTIVE TO OUTSOURCE

HR outsourcing offers many incentives that can contribute to the firm's competitive advantage. With respect to cost, HR outsourcing may contribute to cost reduction by providing improved economies of scale, access to technologies, shared risk, and greater availability of time to devote to the development of core competencies (NAPEO, 2000). With respect to cost, HR outsourcing may contribute to cost reduction by providing economies of scale, efficient access to technology, and shared risk. These cost savings are likely to be especially significant in the delivery of administrative and transactional activities. In addition, by allowing the firm to purchase only the amount of consulting support needed, outsourcing HR can enhance flexibility as well as improve cost efficiency by turning some HR fixed costs into variable costs (Jeffay et al., 1997).

Cost reduction and enhanced flexibility may, however, not be the principal motivation when conducting some forms of HR outsourcing (Buck Consultants, 2000; Greer et al., 1999). In areas where a firm's internal HR staff is deficient, HR outsourcing provides an opportunity to acquire specialized expertise and expert knowledge. Moreover, to the extent that outsourcing is part of a larger plan that strategically refocuses HR activities, HR outsourcing can help attain sustained competitive advantage by improving HR performance as well as freeing up of internal resources for core competencies (NAPEO, 2000).

Because small firms usually cannot afford extensive HR capabilities (Greening, Barringer, & Macy, 1996), HR outsourcing offers special incentives to these organizations. Due to their limited size, small and medium enterprises cannot justify full-time HR professionals. Thus, the complex and time-consuming nature of many HR activities can result in a significant drain on existing managerial resources. As a result, acquiring vendor expertise and gaining greater economies of scale through HR outsourcing may be especially appealing. In addition, many smaller organizations cannot afford to offer employees a benefits package because benefits cost decline as firms become able to aggregate risk across a larger number of employees (Beam & McFadden, 1992; Cook, 1999). Because they serve as the co-employer for large numbers of employees, PEO's are able to aggregate risk to obtain a competitive rate for benefit programs. The expansion of the PEO industry—an industry that focuses on the small business sector—has been fostered by the special needs of smaller firms (NAPEO, 2000).

While the benefits of HR outsourcing are frequently cited as a laundry list of generic advantages, there are, however, numerous contingencies that may influence the feasibility of outsourcing. These potential contingencies range from the unique characteristics of the firm to the availability of vendors to the management of the contractual relationship. As such, while outsourcing provides HR departments with a tool for producing the desired advantages, outsourcing for the sake of outsourcing offers no basis for improving organizational performance (Greer et al., 1999). Given the importance of these contingencies, we later discuss how they may indicate the need for a more "tailor-made" approach that considers how organizations may vary in their ability to capitalize on the promises associated with HR outsourcing.

USE AND TRENDS IN HR OUTSOURCING

Overall Use of HR Outsourcing

The growth in HR outsourcing is frequently cited as representing a major transformation in the design and delivery of HR management activities (Gay & Essinger, 2000). While there is little doubt that HR outsourcing has been expanding, there has been some question as to the precise degree to which this emerging practice is transforming HR management. Recently, however, several surveys have attempted to identify the extent to which HR outsourcing is used. While there are differences reported in the findings, the overall results of these surveys document that HR outsourcing is indeed significant and expanding (Greer et al., 1999). For example, a Society of Human Resource Management (SHRM) survey reported that 60% of 437 companies were using HR vendors (Mobley, 2000) and a study by Buck's Consultants (2000) found that 71% of 225 employers were outsourcing one or more HR activity. And in contrast to broad-based surveys, use of HR outsourcing has been reported to be as high as 93% in surveys restricted to large employers (Greer et al., 1999).

Other surveys have assessed outside vendor usage by examining the expenditures devoted to outsourcing. With respect to total resources used, a recent study by International Data Corp. (IDC), Leonard (1999) found that U.S. employers now spend 7.3 billion on HR outsourcing expenses. In a study that focused on the proportion of total HR expenditures devoted to outsourcing, it was found that an average of 10% of the typical firm's total HR budget was spent on acquiring HR services from external providers (Klaas & McClendon, 1997).

HR Outsourcing Trends

While these figures show that current usage is significant, the growth rate in outsourcing is also significant. For example, one survey found that 58% of employers now outsource training, compared to 22% in 1996 (*HR Focus*, 2000). Another survey reported that 56% of respondents intended to increase reliance on outsourcing (Jeffay et al., 1997). Additional evidence of the increasing importance of HR outsourcing is reflected in projected growth in expenditures. The IDC survey projects that expenditures on HR outsourcing could rise by almost 40% by 2003 (Leonard, 1999), whereas respondents in the survey by Klaas and McClendon (1997) reported that the proportion of the average HR budget devoted to HR outsourcing was projected to increase by 60%.

Probably one of the most important trends in HR outsourcing concerns the growth in the use of PEO's. According to the National Association of Professional Employer Organizations (NAPEO), today 1,500 to 1,800 PEO's oversee 2 million to 3 million American workers who earn $18 billion in annual wages and benefits (Hirschman, 2000). The PEO industry—begun only in the early 1980s—has generated annual revenue growth rates of 25% to 30% while continuing to focus on its core market of small businesses. With respect to future potential growth, PEO's are used by just 3% of firms with 100 or fewer worker (Hirschman, 2000), so there is much room for industry expansion. And given that PEO usage has only started to penetrate some regional markets, optimistic forecasts for PEO growth would appear to well founded.

HR Activities Outsourced

Although these surveys indicate that HR outsourcing is significant and expanding, it is plausible to assume that the degree of outsourcing will vary among the HR activities outsourced. To address questions concerning what is outsourced and by whom, Klaas and McClendon (1997) surveyed more than 200 companies to assess outsourcing levels of twenty HR activities. Findings indicated that payroll administration, benefits administration, employee assistance programs, and training were the most heavily outsourced activities. Moderate levels of outsourcing were observed for recruiting exempt employees, compensation, HRIS, safety and health. The least use of outsourcing was made in recruiting non-exempt employees, employee relations, EEO, labor relations, and performance appraisal. This suggests that the administration of routine transactional activities and delivery of training represent the most heavily outsourced HR functions. As such, HR outsourcing appears to be most heavily concentrated in the

HR provider role. This is consistent with the suggestion that HR departments attempt to maintain control over policy formulation while using outsourcing to achieve administration efficiencies. Significant levels of outsourcing were, however, also found for the design of compensation systems and health and safety programs, suggesting that the HR strategist/designer role is well represented in the use of HR outsourcing.

Other surveys reflect similar findings. For example, one study divided HR outsourcing services into two segments: services such as payroll and benefits administration and business processing outsourcing that includes more design type activities (Leonard, 1999). While the results were similar to other surveys in finding that administrative services represented the largest segment of the outsourcing market, business processing was growing approximately three times faster.

UNDERSTANDING HR OUTSOURCING: THEORETICAL FOUNDATIONS

Transaction cost economics (TCE) and social exchange theory are theoretical approaches that have important implications for HR outsourcing. With respect to TCE, this framework is frequently used to explain how firms choose between alternative forms of governance. According to Williamson (1996), when acquiring necessary resources, firms must choose between market-based forms of governance (outsourcing) and organizational forms of governance (conducting tasks in-house). Given that questions about HR outsourcing relate to the broader "make" or "buy" issues addressed in TCE (Greer et al., 1999; Nooteboom, 1996), this theoretical framework can help explain when firms will choose to outsource HR activities and how contextual factors will impact the effectiveness of outsourcing efforts. However, while TCE focuses on choices about governance structure, it does not adequately consider the impact of the continuing vendor-client relationship in HR outsourcing (Coleman, 1988; Gulanti, 1995; Nooteboom, Berger, & Noorderhaven, 1997). Social exchange theory (Blau, 1964) has been used to analyze a number of interfirm alliances such as vertical integration, joint ventures, and licensing agreements (Gainey, 2000). As such, social exchange theory can complement TCE by emphasizing factors that develop as a result of continuing relations between parties over time.

Transaction Cost Economics (TCE)

A variety of resources are necessary to make a product or deliver a service, and firms must decide whether to produce the inputs in-house or to purchase the inputs externally. The basic premise of TCE is that market-based governance (HR outsourcing) differs from organizational-based governance (in-house HR) in how transaction costs are generated (Williamson, 1996) and that firms will attempt to choose governance structures that minimize the total transaction costs. These transaction costs include the costs associated with opportunistic behavior by service providers, the costs of forming employment and contractual relationships, and the costs of monitoring performance and quality (Williamson, 1975). According to TCE, the nature of the exchange and the contextual and institutional environment will play an important role in determining which governance structure is most likely to minimize transaction costs (Shelanski & Klein, 1995). Therefore, such factors are likely to play an important role in determining when firms will use outsourcing and the impact of doing so.

Accordingly, decisions about the use of outsourcing and the impact of these decisions are likely to vary with the HR activities being outsourced. One example of how the type of HR activity may affect the optimal structure concerns the degree to which a function can be standardized. HR activities that are more standardized do not require significant asset-specific investment in order for the service to be provided. Consistent with TCE, when an asset-specific is not needed for services to be provided, market competition among vendors will serve as an effective mechanism for vendor accountability, enhancing service quality and reducing the risk that the vendor will act opportunistically. Conversely, where a firm must pay the vendor to acquire firm-specific knowledge in order to provide services, the firm becomes more vulnerable to opportunistic behavior by the vendor. TCE argues that where an asset-specific investment is required in order for service to be provided, organizational governance may be preferable even though it is susceptible to costs associated with bureaucratic inefficiency (Williamson, 1993).

Another example of how the type of HR activity may influence the feasibility of market-based structures concerns the potential impact of HR outsourcing on the flow of tacit knowledge within the organization. Certain HR activities require that tacit knowledge flow throughout the organization (Barney, 1991). And theorists suggest that tacit knowledge may be less likely to flow from an outside vendor to members of the organization. For activities that require the flow of tacit knowledge, HR outsourcing may be a less effective option.

According to TCE, HR outsourcing represents a market-based form of governance that yields potential benefits associated with reduced transaction costs (Williamson, 1996). These reduced costs can be derived from improved economies of scale, greater flexibility in adjusting to shifts in supply and demand, and strong incentives for performance because of market competition in fulfilling contractual obligations. However, the threat of opportunism and the difficulty of ensuring the flow of tacit knowledge pose threats to the advantages gained from HR outsourcing. Consistent with TCE principles, these benefits and threats likely vary in accordance with differences in the firm, the environment, and the contract.

Social Exchange Theory

The basic premise of social exchange theory is that two parties must provide each other a valued resource and that both must view the exchange as equitable (Blau, 1964; Lawler & Thye, 1999). The process of social exchange begins as one party provides a favor to another, an act that facilitates an obligation to reciprocate (Kirchler, Fehr, & Evans, 1996). This reciprocity, in turn, sets into motion a series of acts that serve to reinforce the bond between parties, strengthening the relationship as parties establish a shared system of norms that make the relationship desirable (Nooteboom, 1996). Parties then continue relations because the nature of their exchange remains more attractive than viable alternatives (Blau, 1964). And where two parties engage in positive interactions, the parties may begin to identify with other, increasing the trust level and overall quality of the relationship (Gulati, 1995; Lewicki & Bunker, 1996). As such, while TCE assumes that exchanges occur without the knowledge and experience of previous transactions (Nooteboom, 1996), social exchange theory suggest how a relationship that begins as an arms-length market-based relationship might develop into one where there is trust, high quality communication, and a willingness to accommodate the needs of the other party (Hallen, Johanson, & Seyed-Mohamed, 1991; Zaheer, McEvily, & Perrone, 1998). When vendor-client relationships develop trust and other positive features, opportunism is less likely to be observed and tacit knowledge is likely to flow more effectively between vendor and client. As such, where vendor-client relationships develop trust and other positive features, HR outsourcing is more likely to yield positive outcomes for the firm.

To summarize, TEC and social exchange are both useful in understanding HR outsourcing. While TCE provides a framework for explaining the economic basis of HR outsourcing, social exchange theory complements TCE by emphasizing the importance of social dimensions in HR outsourcing such as trust (Gainey, 2000).

HR OUTSOURCING AND ITS BENEFITS: THE ROLE OF CONTINGENCIES

Although performance related outcomes such as reduced costs and better access to specialized expertise are frequently cited as advantages gained from HR outsourcing (Csoko, 1995), there is likely to be much variation in the degree to which firms actually benefit from outsourcing (Greer et al., 1999). Transaction cost economics (TCE) argues that firms will differ in their capacity to benefit from how market-based structures can reduce transaction costs (Williamson, 1996). Furthermore, social exchange theory argues that the benefits received from a contractual exchange will likely be influenced by the quality and level of trust that develops in the relationship (Gainey, 2000). Given that HR outsourcing has important consequences for the quality and cost of HR as well as the profession (Ulrich, 1997), it is important to understand why firms may differ in the benefits received from this increasingly important practice. Because TCE and social exchange theory can be useful in assessing how contextual factors may influence the ability of a firm to capitalize on HR outsourcing benefits, we use these perspectives to identity characteristics related to the firm, the vendor relationship, and the firm's competitive environment that may influence the effectiveness of using HR outsourcing.

Organization Size

Although the growth in HR outsourcing is broad based, there are differences in reliance on outsourcing with respect to organization size with research indicating that larger organizations rely more heavily on outside vendors than smaller organizations. For example, one study (Klaas et al., 1999) reported that employers with more than 250 employees use HR outsourcing at a rate almost four times greater than employees with less than 100 employees, with the highest rate of overall HR outsourcing conducted by firms with more than 500 employees. And in contrast to small employers who report limited use of outsourcing (Hirschman, 2000), surveys that restrict the sample to large employers have found that over 90% of firms rely on some form of HR outsourcing (Greer et al., 1999).

Although larger firms report greater overall reliance on HR outsourcing, smaller firms may have special incentives to outsource because of limited in-house capabilities and advantages of economies of scale that can be achieved from outsourcing (Williamson, 1996). In small firms many HR activities will be infrequently performed. Because of the high cost of conducting these activities in-house, the per unit cost of conducting these services will be relatively high. By contrast, in larger firms the per unit cost for in-house HR will be substantially lower due to greater economies of scale. Given that the cost of in-house delivery of HR is likely to be greater for small firms, one would expect that smaller firms—compared to larger firms—would have a greater propensity to outsource. The fact that the opposite is true is perhaps explained by a countervailing effect. Outsourcing is an emerging practice within organizations and it may be that decision makers within large firms are simply more familiar with emerging business practices and how they might be used to benefit the firm. However, there are strong incentives for such firms to use HR outsourcing and we predict that—particularly with the emergence of the PEO industry—the trend toward outsourcing will continue to grow in the small business sector.

Firm Specific Programs

Where firms use a distinctive approach to managing its workforce (Barney, 1991), HR processes cannot be codified and often are based on tacit knowledge (Conner & Prahalad, 1996). As a result, it is less likely that a contractor can provide satisfactory services unless programs are designed that capture the particular needs of the firm. Designing customized programs that are closely tied to the organization's unique culture will, however, likely require substantial up-front investment in understanding the particular needs of the firm. Due to this up-front investment, designing such programs require additional resources that may reduce the cost advantages associated with the economies of scale that are gained by servicing multiple clients with similar needs (Abraham & Taylor, 1996).

In addition to cost issues, the need for customized programs increases the risk associated with outsourcing. Because programs are tailored to meet the unique needs of the firm, the potential dependency created by outsourcing can be problematic because vendor switching will be difficult and costly (Joskow, 1988). The reduction in economies of scale advantages and the increased risk of dependency on vendors suggests that firms will likely benefit less and, in turn, should exercise caution when outsourcing idiosyncratic practices that require specific program development (Klaas et al., 1999).

Although relying on unique practices may change the advantages associated with outsourcing, the impact of firm-specific and idiosyncratic practices may depend on the type of HR activity outsourced (Klaas et al., in press). For example, because transactional activities such as payroll are standard across organizations and industries, buyers and sellers of these services incur few up-front costs and have minimal dependence on one another. In contrast, design/strategist activities as well as some provider activities must be tailored to the firm's unique needs, requiring greater upfront investment and leading to greater relative dependence.

Consistent with a TCE perspective, there is some evidence suggesting that firms are more averse to outsourcing unique and idiosyncratic HR activities. For example, one study that examined outsourcing at twenty-five companies found executives were unanimous in their advice not to outsource core competencies such as labor relations, employee relations, and performance management functions (Greer et al., 1999). It also appears that firms using idiosyncratic practices are less likely to outsource HR generalist and training activities, but not routine administrative activities and staffing activities (Klaas et al., in press). In addition, firms have also reported that using idiosyncratic practices moderate the relationship between outsourcing usage level and satisfaction with outsourcing (Klaas et al., 1999). Consideration should be given both to the risks identified by transaction cost economics and to whether characteristics of the vendor-client relationship might mitigate these risks. In short, consistent with a TCE framework and research findings, firms should be reluctant to rely heavily on outsourcing for activities that meet specific needs, especially for idiosyncratic HR practices that are closely connected to the firm's culture (Greer et al., 1999).

Previous HR Performance

Internal HR management facilitates the development of firm-specific human capital and tacit knowledge and, over time, the leadership and direction by managers possessing tacit knowledge results in this knowledge being internalized by subordinates (Conner & Prahalad, 1996). Conversely, as discussed earlier, HR outsourcing may limit the opportunities of employees to develop broad competencies that are needed to function effectively (Ulrich, 1997). With HR outsourcing, while objectives can be contractually specified, it will be difficult to transfer such tacit knowledge to vendors if they are based on tacit knowledge (Barney, 1991; Masten, 1988), raising concerns about the ability of vendors to achieve optimal performance. However, where the internal staff has failed to develop the routine and resources necessary to achieve high performance, outsourcing represents an alternative means by which to obtain the expertise necessary to improve levels of performance. While doing so may result in the firm being exposed to opportunism by the vendor, such exposures may be less costly than continued substandard performance.

Promotion Practice History

Emphasizing internal promotion creates paths and training for career advancement and firms that provide such opportunities are able to reward sustained contributions by employees (Doeringer & Piore, 1971). Internal promotion can alter the cost and benefits of HR outsourcing in several respects. First, using the internal labor market facilitates the accumulation of greater tacit knowledge (Barney, 1991), knowledge that can important for HR functions, especially with respect to activities that cannot be easily standardized. Second, one incentive of outsourcing is to avoid the costs that may be incurred by employees pursuing subunit goals at the expense of firm goals. Such costs, however, can be limited by control devices (Dow, 1987), and using promotions as a reward can be one type of control device (Lazeor & Rosen, 1981). Because outsourcing may deprive the firm of tacit knowledge and an important reward system, there will likely be fewer benefits associated with HR outsourcing when the firm has a tradition of emphasizing internal promotion.

Demand Uncertainty

In addition to internal characteristics, factors related to the firm's external environment may also influence the benefits generated from market-based HR management (Klaas et al., in press). One external factor that may impact the feasibility of HR outsourcing decision concerns the demand uncertainty faced by the firm (Williamson, 1996). When tasks are performed in-house, it may be more difficult to reallocate activities across employees in response to demand shifts. While internal staffing involves investments in human capital, making adjustments to demand changes may require forfeiting these investments, resulting in greater cost to the firm. Given that vendors can reallocate work across their client base in response to demand shifts (Abraham & Taylor, 1996), relying on outsourcing may be more attractive to firms that compete in less certain environments. Because they will likely benefit most from increased flexibility, consistent with a TCE perspective, firms facing greater demand uncertainty are more likely to benefit from outsourcing (Klaas et al., in press).

Cost Pressures

The pressure to reduce cost represents another external factor that may influence the incentives and benefits of outsourcing. One frequently cited reason for outsourcing is to achieve cost savings (Goldfarb & Naasz, 1995).

However, given that firms face different cost pressures, it is likely that organizations will vary in the value of the cost savings achieved from outsourcing (Williamson, 1996). In firms that confront strong cost pressures, the benefit achieved from cost reductions will more likely offset the potential downside from outsourcing, relative to firms that confront less cost competitive situations. As a result, firms competing in a context of high cost competitiveness may place greater value on the cost savings available from HR outsourcing.

Pay Level

Because firms vary in their pay level policies (Gerhart & Milkovich, 1990), the cost of providing in-house HR varies among organizations. For organizations that use a pay lead policy, in-house HR is likely to be more costly, thus increasing the attractiveness of outsourcing as a cost reduction strategy. Although firms that follow a pay lead policy may be able to attract and retain high quality employees, the higher costs associated with pay leadership should increase the benefits of HR outsourcing (Klaas et al., in press).

Trust and Vendor-Client Relations

Social exchange theory emphasizes the role of trust in contractual relationships (Bracdach & Eccles, 1989). Consistent with a contingency approach, the ability of the firm to identify and select vendors with whom a trusting relationship can develop will likely influence the benefits achieved with outsourcing. Again, however, the importance of trust will likely vary with the type of activity outsourced. While contractual specifications will probably provide for sufficient vendor accountability when outsourcing routine administrative functions, trust will be essential to achieve optimal results when outsourcing designer/strategist functions that involve firm-specific practices. When outsourcing designer/strategist activities, it is likely that firms who are able to select vendors with whom they can develop trust and who understands how to initiate and nurture a trusting relationship will benefit more from outsourcing.

In summary, not all firms are alike when it comes to HR outsourcing. Characteristics unique to the firm and the competitive environment present a host of contingencies that may increase or decrease the benefits received from outsourcing. As such, variation in the type and degree to which a firm uses HR outsourcing will likely vary in accordance with the firm's unique characteristics and its competitive environment.

MANAGING THE OUTSOURCING PROCESS

The objective of HR outsourcing is to enhance the HR value chain and support the development of HR as a strategic contributor to the firm's competitive advantage (Greer et al., 1999). However, as discussed earlier, there are factors related to the organization, the competitive environment, and the vendor-client relationship that are likely to have important impact on the effectiveness of HR outsourcing. These factors, suggested by theory and research, suggest a number of guidelines as to when to use HR outsourcing and how to manage the outsourcing process.

The Outsourcing Decision

One of the most fundamental decisions when deciding the level of reliance on outsourcing is determining which activities are best suited for outsourcing. According to a TCE perspective (Williamson, 1996), among the factors related to the job and organization that should be considered are issues of core competencies, idiosyncratic practices, and tacit knowledge. HR activities range from routine administrative to strategic activities that involve core competencies. Relative to HR activities that reflect core competencies, outsourcing routine transactional and specialized functions can generate cost savings and facilitate the acquisition of advanced knowledge while posing little downside (Leonard, 1999). Immunity from outsourcing should, therefore, probably be limited to those activities where the company's competitive position will be compromised by the loss of tacit knowledge or in-house expertise.

With respect to idiosyncratic practices, it is more difficult to transfer functions to outside vendors when a firm uses unique approaches to HR, posing threats to performance quality because vendors are less familiar with the firm. And where HR practices are unique, substantial investment is needed before outside contractors can perform adequately. As such, firms that are employ idiosyncratic practices should be more cautious when deciding to outsource, at least with respect to HR generalist and strategic functions (Klaas, McClendon, & Gainey, in press).

As with idiosyncratic practices, the level of tacit knowledge required to perform HR should also be considered when determining the level of reliance on outsourcing (Barney 1991). Tacit knowledge is the result of an accumulation of experiences and will be difficult to communicate to outside vendors. Firms that emphasize internal promotions, have distinctive organizational cultures, and employ idiosyncratic HR practices may rely more on tacit knowledge, causing such firms to be more susceptible to costs associated with outsourcing. Again, however, this threat is greater for activities that may involve core competencies compared to other functions that focus on administrative service.

Factors related to the firm's competitive situation such as level of cost pressure and uncertainty should also be considered. Although cost reduction may not be the primary motive for outsourcing (Buck Consultants, 2000), outsourcing of transaction and some specialist activities can generate cost savings (Jeffay et al., 1997). With respect to uncertainty, the greater flexibility gained from outsourcing can enhance the ability to adapt to external environmental change, causing firms that compete in a more rapidly changing environment greater benefits from outsourcing. Firms that are under cost pressures and compete in less certain environments—compared to firms that compete in more stable environments—should have a greater propensity to use outsourcing, at least for those functions that pose little threat of compromising core competencies.

Finally, given that smaller firms may lack the in-house HR infrastructure of larger firms, smaller firms may have more to gain from the use of outsourcing, especially in terms of acquiring expertise that is otherwise unavailable. It is, therefore, perhaps ironic that larger firms report greater reliance on outsourcing compared to smaller firms (Klaas & McClendon, 1997). In contrast to traditional consulting firms that focus on larger firms, PEO's provide a full range of services to the small business market (Hirschman, 2000). As the PEO industry expands, smaller firms should consider the advantages of improved economies of scale as well as the potential improvement in the design and delivery of HR that can be achieved from outsourcing.

Selecting the Outsourcing Vendor

Given that the choice of the vendor is crucial to successful outsourcing, firms should consider many factors when selecting the vendor. Such criteria as knowledge of the industry and areas of special expertise should be considered (Greer et al., 1999). Because even large firms with good overall reputations may have specialty areas that are of questionable quality, reference checking should be utilized to determine the expertise and capabilities of vendors.

Effective HR systems, however, involve more than technical expertise. Given that HR decisions and activities are influenced by the values of the decision maker, the compatibility of the values and goals between the vendor and client are likely to play an important role (Klaas et al., 2000). In the absence of value congruence, conflict between the vendor and client is likely (Nahapiet & Ghoshal, 1996). This conflict will interfere with the development of a trusting relationship and will likely consume managerial time and resources (Conner & Prahalad, 1996), reducing the cost and efficiency advantages associated with outsourcing. Beyond the assessment of the vendor's expertise, employers should evaluate closely the vendor's values regarding how to manage HR.

Finally, contractual characteristics are likely to play an important role in determining whether outsourcing results in the desired benefits (Klaas et al., 2000). Outsourcing introduces risk of opportunistic behavior by the vendor and the contract is one way to control opportunism (Williamson, 1979). Although in the absence of a clear contract the client can use the threat of exit to motivate the vendor to provide quality service (Williamson, 1996), the exit threat option may not be sufficient because the search and transaction costs associated with switching vendors can be significant (Greer et al., 1999). Given the risks associated with bad contracting, it is imperative that sound due diligence be exercised when negotiating HR outsourcing contracts.

Managing the Vendor Relationship

Social exchange theory suggests that the quality of the relationship between two parties will be important in determining the outcomes of a contractual-based relationship (Blau, 1964). Repeated and positive interactions may facilitate more complete and open vendor-client communications, allowing the firm to take full advantage of the services offered by the vendor (Conner & Prahalad, 1996). More important, a quality relationship will allow trust to develop, and trust is a key factor that is likely to determine whether or not positive outcomes are achieved when outsourcing (Gainey, 2000). And given that open and full communication is essential when transmitting information that is tacit in nature, trust may be especially important when outsourcing HR functions that require tacit knowledge (Nahapiet & Ghoshal, 1998).

To help facilitate a productive vendor relationship, it is advisable for firms to identify and develop managers of vendor relationships (Greer et al., 1999). These managers should report to a high level executive and should possess good negotiating skills. In addition to carefully constructing a contract that attempts to anticipate contingencies (Cook, 1999; Klaas et al., 2000), firms must also monitor vendor performance to ensure accountability.

In summary, managing the HR outsourcing process requires the effective management of a comprehensive set of activities. The first, and most fundamental, challenge is determining the degree to which HR outsourcing will be used. This involves choosing which combination of in-house and outsourced activities provides the best fit with the firm's unique needs and distinctive competitive advantage. However, in addition to the strategic decision process, a effective outsourcing process also depends on identifying the appropriate vendor, negotiating the contract, and developing a productive client-vendor relationship.

FUTURE RESEARCH NEEDS

While it is possible to offer useful guidelines for managing outsourcing in the HR area, much remains to be known about the HR outsourcing process and how that process might be managed. Clearly, future research is needed in order to help organizations as they make decisions about whether to rely on outsourcing and how to manage outsourcing relationships. A key issue that deserves attention is the role of outsourcing when the tasks involved require an asset-specific investment by the firm and require that services be tailored to the particular needs of the firm. At present, firms are advised to exercise caution when considering the use of outsourcing in these areas. While such caution is justified, we do not fully understand why some firms experience difficulties when utilizing outsourcing for these tasks while others experience very positive outcomes. However, although the nature of the tasks being outsourced may make it more difficult to rely on outsourcing, some firms may well be able to manage these difficulties. Both transaction cost economics (Williamson, 1996) and social exchange theory (Blau, 1964) suggest mechanisms by which firms might more effectively manage the risks of outsourcing tasks that require asset-specific investments. But research has not examined the effectiveness of these mechanisms within the context of HR outsourcing.

This paper has also suggested that the development of trust in the vendor-client relationship may often be a critical element (Gulanti, 1995). Unfortunately, little is known about how vendor-client relationships emerge and develop over time and what steps might contribute to the development of trust in this context. For example, while explicit and detailed contracts are often advised to protect oneself from vendor opportunism, some have suggested that efforts to develop such contracts may hinder the development of trust. Clearly, this is an area where researchers might contribute to a better understanding of how firms can develop positive and trusting relationships with their vendors. As an additional example, HR vendors employ very different service delivery models, incentive systems for service providers, and organizational designs. These differences are likely to affect the nature of the interaction between clients and service providers and, in turn, whether trust will ultimately develop. Research examining the impact of key characteristics of the vendor on the development of trust is, therefore, warranted.

Another theme emphasized in this paper is the importance of tacit knowledge (Barney, 1991) and the concern that it may not flow between the vendor and client as effectively as it does within a single organization. And to the extent that tacit knowledge flows less effectively in market-based relationships, outsourcing is often assumed to limit the development of routines and resources that are critical to a firm's ability to gain competitive advantage through people. While these suggestions are grounded in theory and are widely accepted, little empirical evidence exists in this regard. Further, little is known about why this might be the case and what parties can do to minimize this difficulty.

The role of technology also requires significant attention by researchers examining the outsourcing process. To the extent that technology becomes more critical to the delivery of HR services and programs, the attractiveness of outsourcing in different functional areas may well change. To the extent that technology becomes more critical, outsourcing may become attractive because many firms lack the economies of scale necessary to justify the investment in the development of HR applications.

Lastly, little is known about the decision-making process that determines whether to outsource and who to use as a vendor. How such decisions are made and the factors considered are likely to vary substantially across firms. Further, differences in how decisions are made may well affect the outcomes associated with outsourcing in the HR area. Decision-making biases may also affect the outcomes generated by outsourcing. Therefore, understanding the decision-making process when decisions are made about whether to outsource and who to use to provide services is likely to help guide organizations in their effects to make effective use of outsourcing in the HR area.

CONCLUSIONS

On the whole, the decision to outsource HR activities is becoming increasingly likely for most firms. As such, market-based contracting for HR is not a fad and, therefore, will represent an increasingly important challenge to managing the contemporary organization. However, while outsourcing transactional and many specialized activities offer many benefits without posing significant risk, there is some disagreement about relying on outsourcing for activities that are not easily standardized across firms. And while there are many appealing advantages to using a more market-based approach to HR management, the ability of a firm to achieve some of the benefits from outsourcing likely depends on a host of contingencies. Consistent with a contingency approach, transaction cost economics and social exchange theory are frameworks for understanding the profile of firms likely to benefit the most from a market-based HR approach. In addition to choosing the optimal level of reliance on outsourcing, properly managing the outsourcing relationship is crucial to generating the desired benefits. Developing trust through repeated interaction and building partnership relationships, negotiating fully specified contracts, and selecting quality vendors will increase the likelihood of a positive impact even when the firm's profile suggests that the firm is less likely to benefit from some forms of outsourcing.

Although HR outsourcing is becoming an integral part of "new economy" management, to date little empirical research as examined this contemporary practice. In light of this, we have used the limited existing research literature and relevant theoretical models to identify issues that may be useful when executives decide "if" and "how" to use market-based instead of in-house HR.

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CHAPTER 4

VIRTUAL HR DEPARTMENTS

Getting Out of the Middle

Scott A. Snell, Donna Stueber, and David P. Lepak

ABSTRACT

In this chapter, we explore the notion of virtual HR departments: a network-based organization built on partnerships and mediated by information technologies in order to be simultaneously strategic, flexible, cost-efficient, and service-oriented. We draw on experiences and initiatives at Merck and Co. Inc., a leading global pharmaceutical company in order to show how information technology is establishing an infrastructure for virtual HR. Then, we present a model for mapping the architecture of HR activities that includes both internal and external sourcing options. We conclude by offering some recommendations for management practice as well as future research.

INTRODUCTION

The transformation of HR today is a natural extension of changes occurring more broadly within firms. Globalization, diversity, intellectual capital, information technology and the like are expanding the scope of organizations, accelerating the pace of change, and placing a premium on organizational agility, flexibility and rapid response. As firms compete more on capabilities, relationships, and new ideas, they are discovering the importance of collaborating with external partners. Doing so allows them to focus resources and their expertise, integrate knowledge from the outside, react quickly to arising opportunities, and deliver better value to customers.

HR departments, not surprisingly, are at the epicenter of these changes. The pressures and priorities HR departments face are at once shaking the foundation of traditional practice and providing the catalyst for organizational innovation (Kemske, 1998). The transformation in HR supports—in fact enables—broader organizational reinvention.

HR Pressures and Priorities

To compete today, HR departments are asked to achieve four seemingly contradictory goals. First, they are being asked to be more strategic. As Alvares noted: "The bottom-line business of human resources must be the delivery and/or development of human capital that enable the enterprise to become more competitive, to operate for maximum effectiveness, and to execute its business strategies successfully" (1997, p. 9).

Becoming a strategic business partner requires that HR functions be involved in the development, planning, formation and implementation of competency-based strategies. Unfortunately, a recent study of 1050 companies by the Hackett Group (1998) shows that HR professionals typically devote less than a third of their time to the most crucial strategic HR initiatives. Instead, the bulk of their time is still consumed with lower value-added, routine activities. While the message to engage strategically has been enthusiastically received, many HR functions are hamstrung by their administrative heritage.

Second, HR functions are also being asked to be more flexible (Wright & Snell, 1999). Policies, programs, and practices that were once locked in place are perhaps now antithetical to strategic adaptation. Achieving strategic fit in HR today rarely means stable fit and, increasingly, strategic management means *change* management. When asked to name the skill that had increased most in importance, 1,700 HR professionals indicated that change management was their clear choice (*Employee Benefit Plan Review*, 1997). Research by Dyer and Shafer (1999) suggests that many successful firms—i.e., agile firms—are those that are both strategically focused and adaptive to change.

The third priority for HR functions is to take a hard line on costs. The typical organization spends approximately $1,500 annually per employee on HR-related issues, but this amount can double or triple in less efficient organizations (*Employee Benefit Plan Review*, 1997). A portion of these costs is associated with the development and implementation of HR systems and processes themselves, but a good chunk is overhead. Managers are increasingly being asked to prioritize where they can best utilize their time, talents, and resources, and where they can find places to cut. Such cost restrictions are commonplace in strategic HR; the link to strategy is tethered by increased accountability.

Finally, while reinventing themselves to be strategic and flexible, as well as cost conscious, HR functions are still required to provide excellent service to managers and employees. The origins of HR are rooted in employee advocacy, and responsibility for employment relationships will likely continue to be the foundation of HR (Ehrlich, 1997; Kerr & Von Glinow, 1997; Ulrich, 1997).

In short, HR departments are being charged with being simultaneously strategic, flexible, cost-efficient, and customer-oriented. Unfortunately, the evidence suggests that traditional models of HR are poorly suited for these challenges. Critics charge that HR departments are often the last bastions of bureaucracy in organizations, and that the command and control approaches they use actually impede rather than facilitate progress to strategic goals (cf. LeTart, 1998; Sparrow & Daniels, 1999).

Merck & Co., Inc.: Getting Out of the Middle

Merck & Co., Inc. is keenly aware of the limitations of traditional HR organizations. The company is tackling the issue head-on and has made dramatic strides in its transformation. Merck's guiding vision for HR is to "get out of the middle" between line managers and employees. This means that, rather than being an obstacle to performance and effectiveness, Merck wants to make certain that employees and managers have all the information and resources they need at their fingertips. Merck's goal is to increase service levels while decreasing costs. The company is automating routine administrative functions, making more transactional HR activities self-serve via web-based portals, and partnering with external firms that can provide seamless HR services to employees. In so doing, Merck will be able to reduce overhead and administrative costs, increase speed and service levels, and maximize flexibility. And with the resource savings, Merck will be investing more heavily in knowledge management initiatives such as strengthening communities of practice and providing exchange technologies. In a knowledge-based industry such as pharmaceuticals, investments such as these are clearly where the strategic role of HR plays out most directly.

Virtual HR Departments

Achieving all of these goals simultaneously requires a dramatically different approach to HR organization. A virtual HR department is a *network-based structure built on partnerships and mediated by information technologies to help the organization acquire, develop, and deploy intellectual capital.*

The concept of virtual organization borrows from the information technology literature where computers use peripheral storage devices such as a hard drive to augment its active memory (i.e., RAM). The benefit of "virtual memory" is that an operating system such as Windows can manage the swapping of data between the hard disk and active storage so that it appears to the user as if the computer has far more active memory than it actually does (Raymond, 1994).

The analogy between virtual memory and virtual organizations should be obvious. Firms concentrate on their core competencies and outsource peripheral work to other firms, all the while managing the network so that their customer views the relationships as seamless (Davidow & Malone, 1992; Hamel, Doz, & Prahalad, 1989; Mohrman & Lawler, 1997). When done successfully, these virtual firms are able to simultaneously increase efficiency and flexibility. And in these cases, it may truly appear that the organization can do "anything, anytime, anywhere."

Placed in the context of HR, the analogy still applies. Executives are rethinking how they organize the function to make it more flexible and focused while still providing a full complement of HR services. To do so, most firms have increased their reliance on external sources to perform part, if not all, of these HR activities (Brenner, 1996; Snell, 1994; Stewart, 1996). And the external relationships are enabled by information technologies that ensure seamless processing of data, information, and services. To the (internal) customer, the HR department enhances its service capabilities while reducing costs, increasing flexibility and speed.

THE TECHNOLOGY INFRASTRUCTURE FOR VIRTUAL HR

The backbone of virtual HR is information technology (IT). Its impact within HR has been both pervasive and profound. IT allows firms to store and retrieve large amounts of information quickly and inexpensively. It also enables them to rapidly and accurately combine and reconfigure data to create new information. Further, because it allows them to store and quickly use the judgment and decision models developed in the minds of experts, IT systems help firms to institutionalize organizational knowledge. With IT networks, they can communicate more easily and selectively with others in remote parts of the world, thereby allowing for even better use of the information at their disposal (Culnan & Markus, 1987; Rice & Blair, 1984). In that regard, IT can be a potent weapon for lowering administrative costs, increasing productivity, speeding response times, improving decision making, and enhancing customer service. It is also completely vital for coordinating activities with parties external to the firm. Ultimately, IT can provide a data and communications platform that helps HR link and leverage the firm's human capital to achieve competitive advantage.

In the following pages, we present our views on how managers can identify, partition, and prioritize IT applications to support their initiatives in creating virtual HR organization. We focus on three basic influences: First, we discuss the *operational* impact of IT; that is, automating routine activities, alleviating the administrative burden, reducing costs, and improving productivity internal to the HR function itself. A recent study by Aon consulting and the Society for Human Resource Management showed that 62% of firms use information technology to automate compensation while more than 33% use IT for benefits administration (*Employee Benefits Plan Review*, 1997).

After discussing the operational impact of IT, we describe its *relational* impact; that is, providing managers and employees remote access to HR databases, simultaneously reducing response times and improving service levels. Third, we discuss the *transformational* impact of IT; that is, redefining the scope and function of the HR organization to focus more on strategic issues.

The Operational Impact of IT: Automating and Informing

For many firms, the starting point for IT utilization within HR focuses on improving operational efficiency. Given the heavy administrative burden within HR, efforts to automate record keeping and routine clerical activities such as payroll and benefits administration makes sense. Systems that simplify transaction processing and computation activities can substantially increasing the volume of work that one person can do. And by eliminating paperwork, automated systems have the potential to reduce organizational overhead (cf. Schmitt, Gilliland, Landis, & Devine, 1993). This is a first step toward virtual HR. While the work is still done, headcount and variable transaction costs are lower (Snell, Pedigo, & Kraweik, 1995).

As data processing devices have evolved into more comprehensive information systems (e.g., HRIS), many firms have faced the obstacle of integrating their myriad HR systems and databases. The problem is that IT applications often have been developed in different functional areas of HR (e.g., payroll, benefits, staffing) or geographic regions (e.g., North America, Europe, Asia Pacific). As a consequence, there is frequently limited coordination or compatibility across the systems. At Merck there is a major initiative underway to integrate various systems to create a Global HR Data Warehouse that provides a uniform architecture for HR reporting (e.g., payroll, benefits enrollment, address changes, retirement, etc.). In order to ensure consistency across databases in various locations—a condition necessary for analysis and decision making on a global scale—IT and HR managers are working together to develop standardized data definitions and coding structures for all transactions. The goal of this project is to establish one comprehensive repository for employee data while simultaneously making the reporting process more timely and accurate.

With integrated systems, information formerly located in one location can now be distributed and accessed globally. Integrated systems not only create a common backbone for information storage and handling, they can be used to reconfigure HR data so managers can customize their queries to their own particular work force needs (Sawhney & Parikh, 2001). For example, audit-and-edit systems can automatically generate reports to satisfy EEO requirements. Overtime, vacation, absentee data, and the like can be tracked to provide demographic charts and other employee-related information. These applications reveal that IT does not simply automate the HR function, it also "informates" it (Zuboff, 1988, p. 10). Broderick and Boudreau (1992), for example, pointed out that managers could use decision support systems to initiate data excursions to uncover trends in the data that are critical for improving productivity and workflow. In this way, IT can be a valuable decision-making tool that not only provides the data necessary for HR decisions, but also helps to forge a pathway through that data. Milkovich and Boudreau (1994, p. 256) put it this way:

> Today the dilemma is not how to get enough data, it is how to maneuver through the sea of data and identify the most important pieces of information. The key is to focus on better decisions, not just producing data faster.

As systems turn data into information and provide intelligent navigation, their value increases. The systems are not simply passive repositories of data; they are decision tools for proactive action.

From this discussion, we can see that IT creates a tendency toward and perhaps a requirement for process improvements within HR. One of the clichés about IT is that it helps us perform the wrong actions a hundred times faster (cf. Madnick, 1991). In a study by Kinnie and Arthurs (1993), nearly three quarters of HR departments never changed their business processes in concert with the introduction of IT. If HR departments simply "throw" technology at whatever they do manually, and never take advantage of the capabilities IT provides, the new system may actually rivet the old way of doing business into place making it even more difficult to change (Schnitt, 1993). As Hammer and Champy (1993) pointed out, "Automating existing processes with information technology is analogous to paving cow paths" (p. 48). In order to gain the improvements in productivity that most organizations seek, it is frequently necessary to reengineer the HR processes that are currently being used (cf. Madnick, 1991; Schnitt, 1993). In general, these changes alter the nature of relationships between HR and line managers and employees.

Relational Impact of IT: Providing Remote Access

While the operational impact of IT focuses on efficiency and productivity improvements within HR, IT also influences HR's relationships with other parties within the organization. IT allows HR to enhance service by providing line managers and employees with remote access to HR databases, supporting their HR-related decisions, and increasing their ability to connect with other parts of the corporation.

At Merck, several HR practices have been redesigned to enable line managers and employees to enter, retrieve, and edit data (by themselves) from remote locations in order to make better decisions. Perhaps the best example is in the area of staffing. Merck's staffing management system supports the process by tracking application information, scanning resumes, and making the information immediately accessible to line management for systematized skill searches. The system allows Merck managers to search on-line for internal and external talent by posting jobs, reviewing résumés, or running searches of candidates who have been categorized by skill set. An outside vendor that specializes in web-based recruiting administers the system, and acts as a conduit between Merck and broader databases such as Monster.com and Hotjobs.com. But, importantly in the context of virtual HR, while the systems may reside externally, the implementation and connections should appear seamless to Merck managers.

EasyWeb is another application within Merck that increases managerial connectivity. The system enables managers and employees to access their payroll information, 401(k) data, modify personal information (e.g., address, emergency contacts, etc.), customize their flexible benefit programs, and do retirement planning. Because the system connects individuals to outside vendors (who handle benefits and the like), the administrative burden for Merck is lower. In addition, because individuals can access and update the information themselves, employees and managers get more accurate and timely service. *myMerck* takes this idea further and lets employees and HR professionals customize their own web pages based on their particular needs and circumstances. This portal system connects them to the databases and information resources they need to conduct their work (e.g., staffing information, compensation, EEO, and the like). Whereas HR web pages were previously designed from HR's point of view, *myMerck* can be customized to the needs and preferences of the line manager. Similarly, through the *myMerck* portal, over time, Merck's performance management process will be able to provide on-line planning, performance review, employee input, and leadership development all in one integrated package.

By making information accessible on-line, HR can eliminate waste, improve decision quality, reduce cycle time, and enhance flexibility and customization. Just as automatic teller machines revolutionized the banking industry by cutting out the "middle-man," disintermediation within HR can achieve three objectives at once: reducing costs, increasing flexibility, and improving the velocity as well as quality of service (Davidson & Davis, 1992; Snell et al., 1995).

However, a valid counter-argument is that IT may simply shift the burden of administration back to line personnel overloading them with irrelevant and uninterpretable data (Huber, 1990). In such cases, IT inhibits rather than enhances the productivity of line managers and doesn't facilitate the progression toward virtual HR. Organizations can avert such problems by providing decision support systems that help line managers and employees diagnose HR-related trends before they surface as problems, perhaps even anticipating their needs in advance. Using intelligent interfaces, systems can prompt managers with on-line notification of upcoming personnel actions such as performance appraisals and salary increases. The systems can generate summary charts on employee demographics, performance, and the like in order to simplify data analysis used for salary planning. In the not-too-distant future, speech technology may eliminate the need for keyboard strokes altogether, and users will be able to simply voice the actions they wish to undertake. These types of IT applications reinforce the idea that true customer service means helping employees do their jobs more effectively, not simply finding methods for reducing HR's workload.

The Transformational Impact of IT: Redefing HR's Scope and Function

While IT can improve operational efficiency within HR, and enhance relational connections with line personnel and outsiders, the transformational impact of IT involves fundamental changes in the scope and function of the HR department. Beyond changing how HR activities are undertaken, IT also redefines the activities HR undertakes.

For example, Merck used intranet-based technologies to bring together HR professionals from different continents for their global HR 2000 meeting. *Dialog 2000: Reinventing HR* was used as a platform to create a global

HR community and engage Merck's worldwide HR population—including both internal and external partners—in discussions of issues, experiences, and best practices on a variety of topics. Facilitated by an outside partner that specializes in virtual meetings, Merck extended the life of the live event through a network of secure chat-rooms, on-line newsletters, and discussion groups before and after the meeting. Merck provides similar opportunties throughout the company with *NetMeeting* and other virtual collaborative tools that encompass video, graphics, applications (such as whiteboard) and voice exchange.

As technology allows for distributed exchange, HR's reach is dramatically expanded while at the same time its capacity for integration is much better. Particularly in multinational firms trying to coordinate activities worldwide, HR activities can be enormously unwieldy. When information and knowledge are not shared across business units, problems of coordination and control are inevitable. What we have learned is that, these problems shrink dramatically if appropriate enabling technologies are put in place (Snell et al., 1995).

A more specific example of HR transformation at Merck can be seen in the evolution of education and training. Rather than relying solely on traditional approaches to learning, Merck is developing a "blended" approach. In combination with traditional classroom experiences, Merck is creating web-based e-learning opportunities as well. For example, in association with Forum Corporation, Merck piloted the use of an on-line 360 degree diagnostic for its Leadership Development Program. The tool helps managers assess their developmental needs and then connects them to a wide array of external training and educational resources. Similarly, Merck worked with Developmental Dimensions International (DDI) to implement an *On-line Performance and Learning (OPAL)* system that provides coaching tips, learning tools and resources to employees and managers.

Systems such as these don't necessarily replace conventional classroom experiences, but they transform the learning process in several ways. First, individuals can search through a virtual sea of information and customize their own learning. This dramatically reduces employee research time, not to mention the cost savings associated with producing and distributing typical hard copy reference material. But more important, systems such as these facilitate just-in-time skill development by bringing the training to the employees, rather than vice versa (Herren, 1989). In their most advanced forms, *performance support systems (PSS)* use artificial intelligence and hypermedia to "provide just the help a performer needs to do a job, just when the performance needs it, and in just the form in which he or she needs it" (Carr, 1992, p. 32).

The challenge now at Merck is to provide an integrated network of developmental resources for managers that provides them with the very best opportunities while simultaneously reducing the workload within HR. As the transformation occurs, Merck is able to reallocate resources to invest more heavily in knowledge management and virtual collaboration. In a knowledge-intensive industry such as pharmaceuticals, the processes for creating, combining, transforming and applying knowledge are sources of competitive advantage. Learning is evolving from an only individual level phenomenon to a group and business unit phenomenon as well. And it makes distinctions among terms like knowledge acquisition, creation, and transfer almost indistinguishable—they occur simultaneously. From a competitive standpoint, providing worldwide access to a wealth of educational and training materials, and combining this with real-time exchanges of experiences and best practices, is among the best ways to facilitate continuous organizational learning (Richards-Carpenter, 1991a). It is one of the ultimate goals of Merck's virtual HR organization.

MANAGING EXTERNAL PARTNERSHIPS

While IT is the backbone of virtual HR, the network of external partners and exchanges is what gives this form of organizing vitality and flexible execution. Virtual organizations are noted for their collaborative relationships with external specialists (cf. Baker, 1992). The growth of professional employer organizations (PEOs) and other HR service firms has provided functional alternatives that were unavailable just a few years ago. Outside partners allow HR departments to simultaneously respond to increasing complexity while remaining nimble enough to cope with the increasing pace of technological and market changes.

The benefits of outsourcing are becoming well known, particularly in light of the HR priorities and objectives we laid out at the beginning of this chapter (strategic focus, flexibility, cost-containment, and service). Outsourcing can help minimize costs by externalizing routine or low-value administrative tasks; thereby enabling HR departments to focus more on value-creating activities (Alvares, 1997; Carrig, 1997; Davidson, 1998; Quinn & Hilmer, 1994). In addition, outsourcing allows managers to allocate resources on an ad hoc or just-in-time basis. As the needs of the organization change, managers can contract with external vendors to perform specialized services that the organization cannot perform internally (Dess, Rasheed, McLaughlin, & Priem, 1995). The growth of professional service markets has helped HR staffs shift from traditional specialists to more flexible generalists capable of responding to broader business issues. Not surprisingly, recent evidence suggests that between 77 and 93% of firms outsource at least part of their HR function and another significant percentage plans to increase the role of outsourcing in their HR functions (Davidson, 1998; Jeffay, Bohnnon, & Lespisa, 1997).

But for all of the benefits of outsourcing, there are potential downsides as well. Most outsourcing decisions in HR today are driven by cost considerations alone rather than an eye toward broader strategic issues. Executives may recognize the opportunity to cut overhead costs—and purchase skills from an outside source—but their focus tends to be short-term, and the downside ramifications often appear during implementation. According to the Hackett Group's (1998) study,

> Outsourcing remains a major HR cost. The cost to perform outsourced functions can run as high as $415 per employee annually, on average, or 28% of total per-employee HR costs. Yet only 1.6% of HR time is typically spent managing these third-party suppliers, and the expected reduction in costs often doesn't materialize. The white lie of outsourcing is that it's a silver bullet guaranteed to lower costs and reduce the worry. . . . Instead, costs often increase and headaches multiply because outsourcing is undermanaged and poorly monitored.

In addition to cost considerations, the potential loss of operating control over the specific facets that are externalized is a significant possibility (Dess et al., 1995). As firms continue to enter contracts and partnerships with external parties they may find themselves locked into specific arrangements, making it difficult to adapt to changing organizational needs. Related, a continued reliance on external sources may erode HR's internal ability to execute activities critical to competitiveness (cf. Bettis, Bradley, & Hamel, 1990). In these cases, HR may actually decrease its ability to meet and support their firm's strategic objectives if outsourcing is pushed too far or poorly managed.

So the question doesn't seem to be whether outsourcing is a good idea. Rather it seems to be how can HR departments do it well? One of the first issues to be addressed is deciding what should be internalized and what should be externalized, and how can the alternatives be balanced? Beyond that, there are equally important concerns about managing the nature of the relationships with both internal and external parties. All of these issues center on a common theme: What is the best way to partition resources within a network of relationships while managing the permeable boundaries that distinguish organizations. Technology is part of the equation to be sure, but IT is only an enabler (Davidson, 1998).

Mapping the Architecture of Virtual HR

Over the past few years, researchers have begun to address the architecture of sourcing relationships, focusing on the balance between internalization and externalization of resources. These "make" or "buy" decisions are rooted in transaction cost economics (Williamson, 1993) and the resource-based view of the firm (Barney, 1991; Hamel & Prahalad, 1994) as well as broader models of organizational flexibility and change. Quinn (1992), for example, suggests that firms should outsource those activities that are not critical to a firm's success, thereby freeing up resources to focus on core competencies. Functions that are not critical and are not specific to a firm are candidates to be externalized (Saunders, Gebelt, & Hu, 1997).

Lepak and Snell (1998, 1999) summarized much of the literature in this area by way of proposing a model for HR sourcing and employment. The model juxtaposes two strategic considerations—the value created from a resource and its uniqueness (firm-specificity). Based on the combination of value and uniqueness, firms make decisions among four alternative sourcing options.

The value of HR activities. Resources (using this broad term to include knowledge, skills, processes, technologies, databases, relationships and the like) are valuable when they help a firm to enact strategies that improve efficiency and effectiveness, exploit market opportunities, and/or neutralize potential threats (Barney, 1991; Porter, 1985; Ulrich & Lake, 1991; Wright & McMahan, 1992). In the context of virtual HR, the issue of strategic value speaks directly to whether a resource increases the benefits to customers and lowers their associated costs (Beatty & Schneier, 1997; Hamel & Prahalad 1994; Snell, Shadur & Wright, 2001). In the case of HR, there are a host of internal and external customers (i.e., managers, employees, job applicants, contractors, partners, etc.) who depend directly on HR services. Skills, knowledge, processes and the like that are instrumental for increasing value to these customers—and ultimately to the customers of the firm—are more likely to be internalized. Outsourcing a strategically valuable resource runs the risk of putting the firm at a comparative disadvantage (Barney, 2001).

The uniqueness of HR activities. Along with strategic value of a resource, decisions about sourcing also depend on the extent to which the resource is unique or firm specific (cf. Barney, 1991; Hamel & Prahalad, 1994; Quinn & Hilmer, 1994; Williamson, 1993). At Merck, for example, the HR function is developing a new employee orientation program that will be customized around the company's philosophies, values, and culture. The program will be run internally, not so much because of the value created, but because it establishes a distinctive identity for the organization.

To the extent that resources are specialized or firm specific, and particularly when they add strategic value, they may prove to a source of comparative advantage and would likely be internalized. However, firms may not have the capability to develop or maintain these assets internally, or they may not make sufficient use of the assets to warrant internalization. In some cases, such as when trying to retain an expert in a specialized area (or more broadly when trying to acquire a firm), firms may attempt to internalize the contract, but be unable to consummate the deal.

However, regardless of whether the resources are internalized or externalized, the point to be gleaned from this is that managing unique resources is qualitatively different from those that are generic. Generic resources can be managed in a transactional manner taking advantage of market efficiencies. Firms would pay the going rate and the exchange could be mediated through arms length negotiations. However, market-based transactions such as these are less applicable when assets are specialized or unique. Instead, the connections tend to be more relational, developed over time through mutual investment, trust, and experience. This does not necessarily mean that the resources will internalized, only that they will be cultivated on a relational basis (Lepak & Snell, 1999).

Applying the Architecture of Virtual HR

Building on these points, we can conceive of HR activities as spanning two continua: One ranging from transactional to strategic (i.e., low versus high value), and the other ranging from generic to firm-specific (i.e., low versus high uniqueness). As shown in Figure 1, when we combine the dimensions of value and uniqueness, we can develop a better picture of how firms partition and balance their decisions about internalization and externalization. That provides a blueprint for sourcing relationships in the context of virtual HR.

At first blush, it might be tempting to conceive of firms making "wholesale" decisions about internalizing or externalizing an entire functional area. For example, they might handle all staffing activities themselves, and outsource all aspects of benefits administration. More likely, however, firms keep some aspects of an HR process internal and partner externally with vendors who manage other aspects. For example, it is common for firms to maintain control over primary compensation decisions while outsourcing payroll and benefits administration and partnering with consulting firms to conduct wage surveys and job evaluations. Increasingly, this is referred to as "co-sourcing" in that it involves partnering with one or more vendors to share the responsibility for data, technology, administrative processes and communications associated with a particular function (McCormick, 1999).

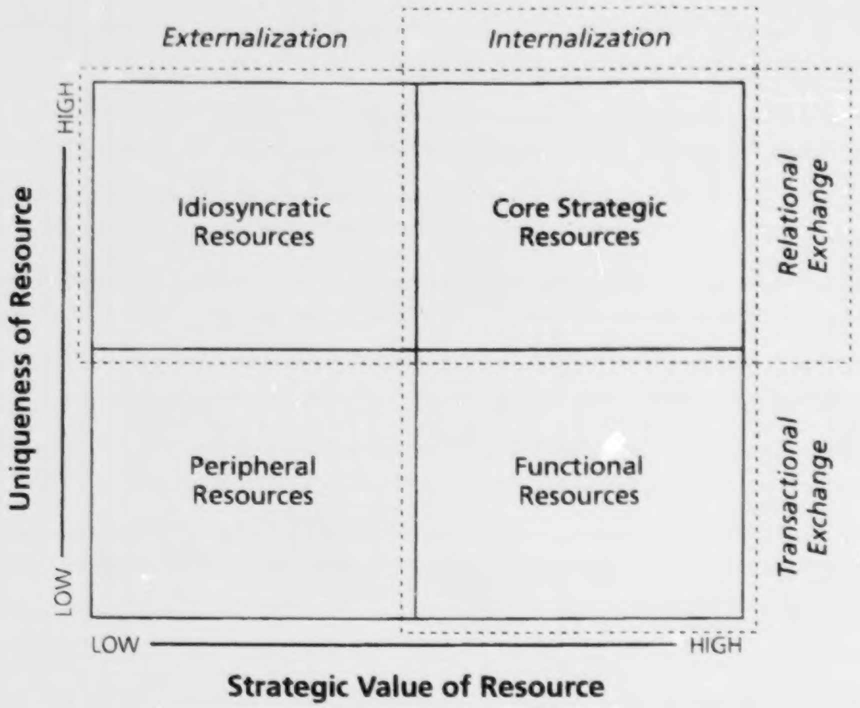
Externalization
Internalization
Uniqueness of Resource
HIGH
LOW
Idiosyncratic Resources
Core Strategic Resources
Peripheral Resources
Functional Resources
Relational Exchange
Transactional Exchange
LOW
HIGH
Strategic Value of Resource

Figure 1. Value and uniqueness as drivers of sourcing decisions.

Our previous discussion of Merck's transitions within training and development illustrates this partitioning within an overall architecture of HR. Merck retains responsibility (and expertise) for overall planning and strategy, but has established several external relationships to manage more operational activities within the "learning environment" globally. Because the core development priorities at Merck center on strengthening communities of practice and continuous learning, these areas are seen as both strategically valuable and a source of inimitable advantage.

In addition, there are other activities that are repeatable and/or broadly deployable (though perhaps not firm-specific) that are also handled internally, but with less involvement or investment. For example, Merck maintains a small group of internal consultants who work on various initiatives within the company and may be redeployed as projects and priorities change. However, as noted earlier, the firm keeps a constant eye on whether holding these particular assets internally is generating a return commensurate with its investment.

Externally, Merck has a number of interesting partnerships for training and development. Recall, managers utilize a 360-degree diagnostic to determine educational and developmental needs, and identify resources to address these needs (some on-line and some in traditional classroom settings). While the delivery of the content itself may be contracted with any number of vendors on a "one-off" basis, the development and management of the diagnostic instrument is handled though an ongoing alliance between Merck and Forum Corporation. This highlights the difference between peripheral contract vendors who provide services "off the shelf" in a market setting versus closely associated external partners who co-develop the programs with Merck. The choice between these two forms of externalization hinges on whether the resources are unique or not. While spot contracting may be an ideal option for generic non-proprietary activities, a stronger partnership is likely to be more appropriate when the outcome or product of the relationship needs to be customized to the firm's specific needs.

PUTTING IT ALL TOGETHER

Two fundamental levers—external partnering and information technology—are central to the transformation. Outsourcing and external partnering provide organizations the flexibility to adapt to external changes, the possibility for appropriating outside expertise, the opportunity to reduce overhead costs, and the chance to focus resources on strategic initiatives.

However, developing a network of external partners alone is not sufficient. An axiom of organizational design is that structural differentiation needs to be balanced by forces of integration (cf. Galbraith, 1973; Lawrence & Lorsch, 1967). Without some methods for coordinating and controlling disparate activities and functions, an organization will literally "dis-integrate" (cf. Davidson, 1998; James, 1997; O'Connell, 1996). As we have seen, the integrative potential of IT is enormous. Problems of time and distance shrink toward zero through shared information and remote communication. And in that regard, IT increases the "art of the possible" for network structures, allowing firms the discretion to contract externally and extend their boundaries more broadly than ever.

But there are other integrative concerns that need to be addressed as we move forward. One of the most important is the management of partner relationships. Apart from initial decisions about what should be retained internally and what should be externalized, firms need to enter into relationships carefully and make certain that they remain mutually beneficial over time. At Merck, for example, choosing an outside partner is heavily influenced by prior reputation and expertise. Even so, the company rarely makes broad-based commitments to a partnership, but rather begins with pilot programs to establish the exchange. There tend to be two overriding key success factors in these partnerships. First, the company and the external partner need to establish clear expectations of one another. Through specific contracting, the partners establish the terms and conditions of the exchange as well as the resources and time frames for the work. In addition, as the work progresses, success depends on frequent and open communications not only to identify potential problems but to develop ways to capitalize on arising opportunities. Over time, Merck works to solidify and enrich the partnerships through initiatives aimed at mutual learning. The company's Annual Strategic Learning Conference, for example, is a forum for bringing Merck staff together with external partners in order to work collaboratively on understanding the priorities of the business and planning for upcoming years.

These relational elements are very important for cultivating a mutually beneficial partnership with external agents. And in that respect they are a very important integrative mechanism for virtual HR. Although researchers have begun to address the nature of exchanges such as these in the context of social capital, network development, and contingent contracting (Matusik & Hill, 1998; Nahapit & Ghoshall, 1998; Podolny & Baron, 1997) more research needs to be done within the specific context of HR (Brass, 1995).

In addition to the integrative issues surrounding partner relationships, there are potentially critical issues with regard to the integration of HR systems themselves. Configurational frameworks of HR highlight the potential value of combining HR activities to create performance synergies (cf. Delery & Doty, 1996; Huselid 1995; MacDuffie, 1995). For example, high performance work systems are built on combinations of HR practices that reinforce knowledge development, information sharing, egalitarian relationships, and performance-reward linkages. Staffing, training, job design, performance management, and compensation practices work together to create a mutually reinforcing system of practices, the whole of which has a greater impact than any of the individual practices used in isolation.

Early on, executives at Merck recognized the risk of potentially fragmenting their HR systems (and community) when they began to contract externally for particular services. They understood that if care were not taken to manage the integration explicitly, they might compromise the integrity of the overall system. And if that occurred, any short run benefits of cost reductions, flexibility and the like would be more than offset by the long-term negative consequences on workforce effectiveness. For that reason, Merck executives retain total control and responsibility for planning and HR strategy.

While a good deal of research has been done recently on HR configurations and internal fit, much less is known about these issues in the context of external partnering, flexible structures, and virtual HR (Wright & Snell, 1999).

CONCLUSION

In this chapter we have tried to explore some of the underlying elements and parameters of virtual HR departments. By first working through the operational, relational, and transformation influences of IT, we hoped to show some of the ways that technologies are reducing the administrative burden, automating processes, increasing productivity, providing employees and managers with remote access and connectivity, as well as extending the capabilities of the HR function itself. In doing so, we hopefully made clear how IT is enabling HR departments to "do more with less" while simultaneously enhancing its abilities to serve internal customers.

As a second fundamental piece of the equation, we also discussed the ways in which firms are utilizing external partners to perform some portion of their HR activities. The centerpiece of this discussion was a model that juxtaposes the strategic value of resources against their uniqueness. Based on this, we made observations about which HR activities and skills might be kept internal to the firm and which might be externalized. We also made distinctions between types of external relations (i.e., those that are market-based versus those that are cultivated through mutual exchange). Ultimately, we laid out some recommendations for managing external relationships and suggested a few avenues for research that stem from these.

What is clear from our work in this area is that the notion of virtual HR is both compelling from a strategic standpoint and seductive from an operational one. The use of information technologies and external partnerships is rapidly expanding in both large and small organizations. And there may be a temptation, even a sense of urgency, about embracing the change.

But as we move forward, it is important to note that investments in neither area have been met with unbridled success, and combing them makes the prospects even more challenging. Our purpose for this chapter was to raise some issues about why firms are making the transformation, as well as the underlying mechanisms for doing so. It is an exciting time for HR to be sure. Rather than being seen merely as the purveyors of routine administrative services, HR departments have the opportunity to contribute substantially to the development of competencies and capabilities needed for competing in today's economy.

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CHAPTER 5

THE ROLE OF THE HR PROFESSIONAL IN THE VIRTUAL ORGANIZATION

Dave Ulrich and Richard W. Beatty

ABSTRACT

Accelerated rates of change are driving new realities for organizations and human resources. New realities with customers, technology, industry, and investors shape new rules for winning. Because of these changes, we are on the brink of new organizational forms—horizontal, alliances, networks, boundaryless, lateral structure, lateral, and shared services—all of which entail a virtual organization. This chapter describes the context of change, explores the implications for emerging virtual organizations, and proposes five roles—coach, architect, designer, facilitator, and leader—for HR professionals to contribute as players, not just partners. We discuss why each role matters and how to perform the role. By mastering those roles, the Human Resource function will add value to traditional and emerging virtual organizations.

Bob Dylan was right: "times they are a changing." But even Dylan probably never anticipated how today's accelerated rate of change and the new economy creates new realities for organizations and human resources. In this chapter, we (1) describe the context for changing times, (2) suggest implications for the emerging virtual organization, and (3) propose roles for HR professionals to contribute as players, not just partners.

CONTEXT FOR NEW REALITIES

Through Web-enabled technology and customer education, customers are more informed than ever, having ready access to information about products and services. Firms seeking to build a customer value proposition learn to target key customers and strive to gain customer share as they meet customer needs over time. For example, 10% of e-Bay customers purchase 90% of their products; 10% of airline customers provide 40% of revenue and 60% of profit. Financial service firms strive for share of wallet; consumer product firms seek share of stomach. In each of these cases, new customer realities have established new rules for winning shifting from market share to customer share.

Technology has made information accessible and available. Information ubiquity has been the foundation of e-business operations with business to business, business to supplier, and business to employee implications. Information has allowed for warehousing customer data that allows firms to cluster customers and determine their buying criteria. Information allows customers to be targeted for life, knowing their desired behaviors and anticipating buying criteria. Information allows personalized employee deals to replace categories for employee rewards. Information ubiquity changes competitors, customers, suppliers, and employees.

Industry consolidation has shifted from mergers and acquisitions within traditional industry boundaries to convergence across boundaries. Airlines consolidated in the last decade, through mergers or alliances. At first such consolidation occurred within a geography; then across geography. Now convergence means that airlines must compete with those outside their industry. One of the airline assets has become their frequent flier programs and miles. Now airlines play in the competitive arena with retail stores, phone companies, and restaurants in deploying these frequent flier benefits. Likewise financial service firms worry about banking through Internet firms, about supermarkets performing financial services, and about traditional manufacturing firms (e.g., General Motors, General Electric) performing financing functions.

Investors now look behind the financial numbers to determine market value of a firm. They have started to look at intangibles that predict future results. They don't just want financial results today, but confidence in future results. Intangibles such as quality of leadership, speed of response, ability to innovate, capacity to integrate mergers, and intellectual capital have become an increasingly central part of a firm's total shareholder value proposition.

New realities with customers, technology, industry, and investors shape new rules for winning. Because of these changes, we are on the brink of new organizational forms, which go by many names: horizontal, alliances, networks, boundaryless, lateral, and shared services. All of these labels require a virtual organization.

VIRTUAL ORGANIZATION

Our approach to understanding the virtual organization is based primarily on the ground-breaking work of Don Tapscott, David Ticoll, and Alex Lowy—*Digital Capital* (2000)—which focuses primarily on the work of Ronald H. Coase, a Nobel-prize-winning economist. Coase, who initially studied socialist countries, asked why such countries could not be run like large corporations, as in the United States of the 1920s and 30s. His primary reason for rejecting the possibility of such a transition was that he saw a fundamental difference between U.S. corporations and socialist governments. Corporations were formed of *voluntary* associations with employees. That is, employees were free to enter and to exit. In many respects, this is a fundamental premise of the virtual organization, as the employees have choice about working with an organization and are volunteers as opposed to passengers in traditional organizations.

Coase pursued a second question: Why bother to have associations in the form of organizations period? His answer revolved around the efficiency and effectiveness of transaction costs, which caused organizations to bundle together. The perception of these transaction costs largely differentiate both the corporation as we knew it and the virtual organization as we are beginning to know it. Coase described three transaction costs:

> **Search costs**—the costs of finding others to do business with, such as suppliers in the automotive industry, and determining if they could be trusted. If not, the firm might pursue vertical integration (i.e., producing a product from "cradle to grave"). Indeed, at one time the Ford Motor Company even owned a rubber plantation.
>
> **Contracting costs**—the costs of lawyers' fees, time for negotiations, and to haggle with outside organizations that are required to do a deal.
>
> **Coordination costs**—the costs required to put together the bundles necessary, often in terms of suppliers, materials, labor, and manufacturing techniques to produce a product.

We can readily see how the transformation of information technology from the Industrial Age to the Information Age has profound implications for these three transaction costs, giving rise to the virtual organization.

In the Industrial Age, the corporation was seen primarily as a business unit and production as *the* business activity. In the Information Age, both the unit and the activity are displaced; the unit by the "business web" as the primary entity, and fulfillment as the primary business activity (i.e., not just products, but enduring relationships). This is a significant transformation.

In the past, corporations owned and housed functions with tight structures, chains of commands, and high focus on hierarchical governance processes. In the future, because of b-webs, virtual organizations will have many of their means of production dispersed across many corporate entities with integration being less bureaucratic and more from commitment to a common customer value proposition. As such, virtual organizations will be more concerned with building relationships with and customizing its offerings to customers than control over resources.

The theory driving virtual organizations comes from Coase's concepts. That is, a firm should expand inside until it exceeds the costs of performing the transaction outside. This was true of the historic corporation and led to large, hierarchical, complex firms; but the Internet has now dropped external transaction costs so dramatically that the firm must invert Coase's work. Firms should *shrink* until the internal transaction costs no longer exceed the external costs. Thus, the only work that should remain is if a firm can do it cheaper inside. Virtual organizations operate through alliances and relationships to serve customers.

Today we see many examples of firms beginning to build such business webs. Clearly the motion picture industry is very different from the traditional studios of yesteryear, where every component of a film was conducted on massive lots and every component of the industry was owned by the studio moguls. Today all one has to do is to view a motion picture's credits and recognize that the industry has transformed into a business web whereby each component is owned and operated by a specialist, unified around a unique project to produce a customized product, whereby a central player in the b-web is taking the risk of bringing it to market (or perhaps sharing the risk). But those who have participated in the production, although each may be successful, may never participate with one another again. The fashion industry is much the same. When fashion trends are spotted, the designs are sent to various production facilities around the world, distributed by yet separate groups and marketed and sold yet by other components of the fashion web. In financial services there is no doubt that there are many specialists, all of whom could be called into play or out of play as the entire financial services industry begins to restructure itself from the behemoth money market banks to specialized boutiques, all which can assume various risks within the industry.

Even the automotive industry is beginning to experiment with similar forms, as is demonstrated by the soon-to-become-a-reality COVISINT, the online market created by what we formerly knew as the "Big Three," with the addition of Renault/Nissan as a partner. The Internet capabilities enable CEOs and other executives to track specific shipments, and eventually will permit built-to-order automobiles customized to the needs of every consumer. What we are describing thus is not the production by a company but fulfillment by firms that orchestrate, clearly the mandate of the information economy.

The b-web even links the customer and often brings them inside the company, such as MP3, which is dependent upon teenagers as both customers and providers. The same, however, is also true of Dell, Cisco, Nortel, etc. Their relationships enable fulfillment to provide a much deeper sense of satisfaction, not just tossing out a product, but building a customer relationship that in and of itself creates a form of wealth. Thus, Old Economy firms such as Nortel, Ford, and GM have recognized this new form of value creation and are pursuing such a strategy.

Another example is Lego, which is perhaps the most fascinating of all of these examples. Lego is now making high-tech toys for children and adults. Thus, it has a mandate for growth that really is new products for new markets. One of these new offerings comes under the rubric "Mindstorms." These are Lego bricks with gears, motors, light and touch sensors, and a microprocessor (RCX). These enable the building of robots and other exotic toys for older children and certainly for adults. In creating Mindstorms, Lego brought customers inside the company. The MIT Media Lab designed RCX. A Stanford student reverse-engineered it and posted it on the Internet. Lego, however, made a decision not to fight it, but to see how it might develop, much like Linux. Someone in Illinois designed software, followed by another software designer in Germany. The products that have emerged from these software designs, which of course require the purchase of Lego components, has grown very successfully. The product offerings now include a dog named Grr who can respond to voice commands and distinguish colors, as well as photocopiers. Obviously, Lego is now encouraging the development of RCX software.

Another example is P&G's Reflect.com, a Web-based cosmetic company, where there are no products until customers design them. Thus, Reflect.com makes available all the fifty thousand formulas created by P&G, not just the twenty that had traditionally hit the shelves. It helps the customer decide what they want after customers have described their hair, eye color, skin condition, and favorite look, the customer is sent customized products with their *name* on each product. Reflect.com has more than 500,000 users per month. The lesson here obviously is that to bring users onboard with you, welcome them, and find new ways of engaging them.

Thus, new business realities have led to virtual organizations. The virtual organization is here to stay, even as it continues to morph and adapt to new business realities. The virtual organization will create new challenges at how we look at work, where it is done, who does it, and how it is staffed, with profound implications for the HR profession as we have known it.

HR WORK IN A VIRTUAL CORPORATION

The virtual organization will emerge in truly Web-based organizations, such as Dell and Cisco, but also traditional organizations like GM, Zurich Financial Services, Hallmark, and airlines that have to learn to respond to the new business realities. Even with the demise of the dot-com craze, the virtual organization will endure.

What are the implications for HR work? With virtual organizations both more narrowly focused by their definition of value and more broadly connected through alliances to serve customers, organizational capabilities and employees will have to change. Successful virtual organizations will have to demonstrate the capabilities of customer understanding to build a common value proposition, relationship management to form alliances, strategic clarity to ensure a winning value proposition, employee shared mindset to ensure commitment from dispersed employees through common values not hierarchical rules, innovation to produce new products and services, learning or knowledge management to share ideas across complex boundaries, and speed to assure an internal organizational response consistent with external customer demand.

Clearly we are beginning to understand that in the virtual organization competition comes much more from intellectual capital than from other sources of competitive advantage, such as ownership of production. Therefore, these new organizational forms may be far more workforce dependent than in the past. Each and every asset added must add greater economic value, greater customer wealth than in the past. Thus, we are faced with *very* different circumstances for the design and delivery of a workforce than heretofore.

To meet these increased expectations, HR professionals must be more than partners; they must be players. Players contribute. They are engaged. They add value. They are in the game, not at the game. They deliver value. They do things that make a difference. In our observations of HR players, we have identified five roles HR may play to contribute in the virtual (and other) organization: coach, architect, designer, facilitator, and leader (see Figure 1). HR players who master these five roles add value and contribute to the virtual organization's ability to compete.

HR Player as Coach

Why coaches matter: The coach metaphor comes from music, sports, drama, or other endeavors where participants must learn, adapt, and act in an ever improving way. Coaches help participants see what did and did not work and offer specific counsel and advice on what can be done to improve performance. Coaches focus on behaviors as well as attitudes. Coaches

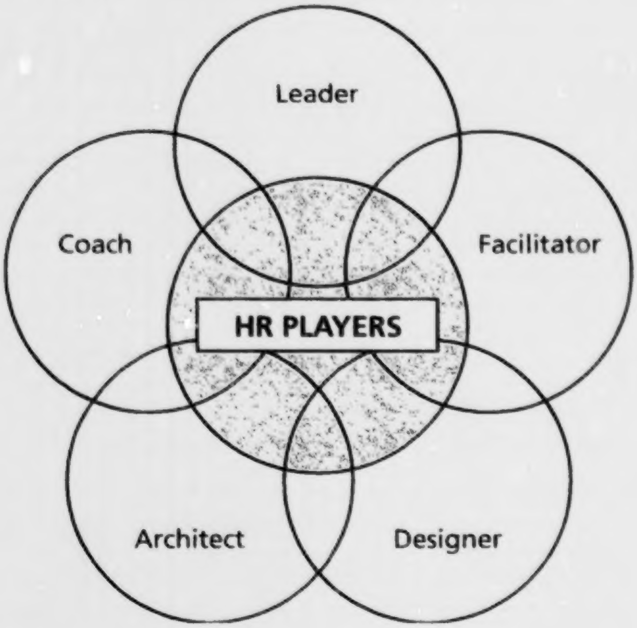

Figure 1. HR's contributions.

have to understand individual differences and figure out how to motivate desired behavior. Coaches teach as well as learn. Coaches know when to be critical and demanding and when to be positive and supportive. Coaches know how to stimulate individual behavior and encourage teamwork. Coaches may not be popular, but they are accountable for the results they deliver.

In virtual organizations, HR professionals coach senior leaders about how they can personally build stronger organizations. They fulfill all the above duties of a good coach. In recent years, with increased time pressures, many CEO's have been forced out of their firms, not because they did not understand the realities new economy and requirements of the virtual organization, but because they could not build the capabilities necessary to respond. HR professionals help CEO's succeed by observing their behavior and providing personal feedback on how to make changes for both shaping business direction and adapting personal style. Too often business leaders distance themselves from both business reality and from the unintended consequences of their actions. Because of their authority and position, they may be immune from sensing the impact of their decisions and actions. HR coaches read their business leaders and learn how to provide them concrete feedback on their behavior. Like personal trainers, they are able to help executives get organizationally and socially fit. HR players are in the ideal position to do executive coaching because they are outside the career politics (e.g., not after the senior leader's job), have training in the human side of the business, which enables them to observe unintended consequences, and offer insights not often shared with the business leader.

What coaches do. Coaching is a complex set of skills, but we have identified a few key coaching tools that enable HR players to coach business leaders. Business leaders need to have a clear sense of what they want to accomplish. Often these goals may be defined by examining each stakeholder relevant to the business leader, including: customers, boards, senior management team, suppliers, alliance partners, investors, government agencies, employees, etc. Using this stakeholder map, an HR coach may help the leader identify for each stakeholder:

What are your goals with this stakeholder?
What are the current relationships with the stakeholder?
What needs to be adapted to reach the goals?
What are the actions that you can take to ensure that the goals are met?
What are the metrics for success with each stakeholder?

These questions may become part of a coaching conversation. They help the business leader allocate attention and energy. They help the leader identify actions that need to be taken to accomplish specific goals. They help prioritize goals. We use stakeholder maps when we coach and have seen competent HR professionals do so. It provides a template that the business leader can recall and readily use to focus attention.

In one company, we have coached a senior business leader once every six months for two years. Each visit begins with the stakeholder map. We ask how he has done with the stakeholders he was most worried about in the last visit and engage with him priorities, goals, and actions for the future. The stakeholder map has helped the business leader realize that he cannot be all things to all stakeholders all the time. Coaching has also helped him realize that attention to stakeholders may need to evolve over time (e.g., as union relations were approaching contract time, he had to allocate more attention to this stakeholder and pull back from others). By matching his stakeholder goals with his calendar and time, we were able to help him keep focused on the things that mattered most to him.

HR players as coaches also must learn to give clear, direct, candid, and useful feedback to both the business leader and team. Giving feedback requires knowing how the person will respond. One leader we worked with became defensive with feedback, so the comments needed to be couched in terms of future suggestions, not negative criticism. Another valued the direct and blunt feedback, but then could not process it and turn it into behavioral change. We have learned that feedback works better if it is behavior based (e.g., examine what you did in this specific instance) not generic ("you tend to not listen to employees"), offers suggestions for improvement more than criticism ("in the future, you might try having more input on a decision before you make it"), focuses on the future more than the past ("why not try to begin the meeting with a question next time"), and encourages reflection more than acceptance ("here is what I perceive, how close is it to what you perceive?")

Coaching often requires courage and contracting. Many business leaders have not had personal coaches who offer them candid observations and as a result might be put off at first by intense coaching. However, when done well, coaching becomes an invaluable source of insight. In one large firm struggling with the demands of becoming a virtual organization in the new economy, two business leaders were often in conflict about which direction to take the firm. The new head of HR asked for a two-hour meeting with them. He proceeded to say that in his brief time with the firm, a number of problems embedded in the firm stemmed from the conflict and difference of opinion between the two of them. At first, they disagreed. But as he shared specific cases, they came to realize that their inability to create a shared point of view about how to position the firm was causing chaos within the firm. He then proceeded to help them through difficult, but candid conversations about their unique management styles, aspirations for the firm, and personal ambitions. He kept in front of them the importance of their converging around a common set of ideas so that others in the firm could then align their behaviors. His biweekly meetings became a forum for honest discussion that the two senior leaders had not experienced. These conversations not only increased the HR executive's personal credibility, they enabled the executives to focus and respect each other's strengths and weaknesses rather than conflict and create chaos.

How to coach. In order for HR professionals to coach, they must build a relationship of trust with the business leader. This relationship emerges as the HR professional expresses personal concern for the leader, empathizes with the leader's challenges, offers specific suggestions for the leader's actions, spends time with the leader both observing and sharing observations, and is willing to offer the leader feedback he or she may not receive elsewhere. In political organizations, few tell the leader what the leader does not want to hear. Coaches must find ways to share good news and bad with the requisite trust that both messages are intended to help the leader and company improve. We have found most of the leaders we coach find the coaching session (one hour a month or quarter) cathartic. They are able to have someone in their office that does not have an agenda, a request, or a point of view to pitch. They have someone in front of them who listens and wants only to help the executive think through options and improve business and personal performance.

Trust also comes when the coach is able to express personal concern. In our coaching one of the important stakeholders is self. We often ask the question, "how are you taking care of yourself?" We have found executives who are so engaged in the business that personal relationships that matter are avoided or discounted and hobbies that give balance and fullness to life are being put on hold. We often legitimate taking time for self, which might mean a weekend retreat with a significant other, installing telephone line exclusively for family members who can call anytime, or legitimating personal renewal time. One executive confided to us that the pressure of the job was causing some insomnia and it was worrying him. He could not share this with others on his management team, but we talked about it and encouraged him to spend time in off-work activities that lead to renewal. Taking care of self becomes an integral part of the coaching relationship.

HR Player as Architect

Why architects matter. Both authors have had a house built using an architect. We learned early and quickly the importance and role of architect in making sure the house was right. The architect spent a lot of time listening to us to find out our lifestyle. In one case, he positioned the house on the lot so that we had maximum privacy from neighbors, putting more square footage into rooms we were more likely to use (e.g., kitchen and family room) than not use (e.g., formal living room), having an open flow to the house, strategically placing bedrooms for children and offices for adults, and building rooms according to our specifications. One of the authors wanted an office with rather unusual requirements (personal work area, teamwork area, and comfortable seating area). The architect pointed out the liability of such a room for resale, then gave options for configuring the room so that if someone wanted, it could be shifted from an office into bedrooms. The architect continually pointed out choices that we the owners could make to ensure that the house met our needs.

HR players architect virtual organizations. Architects help turn general and generic ideas into blueprints for organizational action. They shape the way work flows consistent with the ideas and ideals of the business leader. They help identify choices not evident to the business leader about how organizations might be better governed. They come to the management meeting understanding business realities and virtual organizations and ensure that dialogue focuses on the right issues. With resources accessed through alliances more than ownership, they assure that organization capabilities cross boundaries. With employees behaving as volunteers, they help adopt new workforce policies to attract and retain such employees.

What HR architects do. Organization architects possess multiple skills. They attend management meetings with an eye to the ways in which the organization may be aligned with strategy. They continually look for the strategic agenda of the firm and try to envision how it turns into an organizational agenda. In these meetings, they offer ideas and alternatives about how to weld organization capabilities across alliances to deliver value to customers and employees. They perform organizational diagnoses by asking questions such as:

> Given our strategy, do we have the right organization?
> Given our strategy, what are the capabilities we must have to deliver the strategy in an effective and efficient way?
> Given our strategy, what roles must be played by management team members to ensure implementation?

These types of questions allow for organizational diagnosis to occur and focus attention on crafting improved organizations.

At Hallmark Cards, Ralph Christensen is an outstanding organization architect. He actively participates in the senior management team meetings. He understands the vision of the Chairman and works to turn that vision into organizational reality. He has focused his attention on the competencies required for the firm to deliver the vision. With these competencies in mind, he has aligned the firm's HR practices (e.g., staffing, training, compensation, communication, diversity management, etc.) to deliver the competencies. He also has architected the blueprint for succession with pending leadership transitions. He architects a process for governance and how decisions are made by identifying which teams in the organization have primary accountability for which decisions. He helps architect the agenda for senior team meetings and ensures that attention in meetings is spent on the right issues. He architects systems that help deliver results by designing and delivering a rigorous and accountable performance management system that turned strategic goals into managerial behaviors. Senior managers perceive Ralph's contribution to the firm by the ways in which he shapes and crafts their organization.

Architects are not owners, however. When we built our house and had the oblong office, the architect pointed out liabilities of our anticipated choices, but we as owners maintained final choice. At other times, the architect would ensure that our desires were possible within code (e.g., electrical outlets, pitch of the staircase, heating and cooling systems, etc.). Likewise, HR professionals as organization architects may not own the organization, but they offer informed choice. For example, in Hallmark's transition to a new CEO, Ralph laid out three alternative scenarios the current CEO might follow in succession, pointing out pros and cons of each and helping the current and future CEO make the best choice for them. They own the choice. At other times, organization architects must ensure that action is congruent with current code, or regulation. Hiring or paying someone must fit legal and ethical requirements. Organization architects know when and how to give choices and when and how to ensure compliance with regulation.

How to architect. In order for HR professionals to be organization architects, they must have a concept of organization and be able to apply that concept to the firm. A concept of organization means that they have a model of what constitutes an effective organization. An abundance of these models exists. McKinsey has used the 7-s framework for organizational diagnosis for years. Jay Galbraith construed organizations into five dimensions or a "star"model: strategy, structure, rewards, processes, and skills.

We deploy a two-phase organizational diagnostic model. Phase 1 focuses on the "capabilities" the organization requires to win. These capabilities represent what the organization must be good at doing to succeed. They have been called processes, cultural pillars, organization characteristics, and core competencies. In doing an organization diagnosis, we often present a list of them to a management team and suggest they pick the most critical 3–5. The list of capabilities a firm might require include quality, quick response, innovation, customer focus, stateless/global, partnering, change management, learning, leadership, talent or intellectual capital, shared mindset or common culture, boundaryless, accountability, or strategic clarity. Once the executive team picks their top 3–5, we operationalize them by putting them into behavioral terms that can be monitored and measured.

For example, Pitney Bowes is shifting its strategy consistent with the b-economy. The firm has traditionally relied on product innovation as its key strategy agenda. It would have embedded products in messaging solutions or mail room services, then upgrade those products as required by technology to ensure growth. In recent years, the CEO has refocused the firm on a strategy of customer intimacy. This strategy has focused on total messaging solutions for targeted firms, seeking to have a share of messaging revenue from targeted firms through intense service. The executive leadership team at Pitney Bowes, worked to define the organizational identity and capabilities required to deliver this new strategy. After debate and dialogue, they concluded that the capabilities required for them to succeed were: responsiveness, innovation, and total solutions. They wanted to create an identity among their targeted customers as the most responsive, innovative solution provider in the industry. They felt that if these capabilities desired by customers were embedded inside the firm, their strategy would happen. The architect of this work was the senior HR leader who helped the CEO turn a new reality strategy into a set of capabilities.

Often consultants serve as organization architects. We would argue that consultants may partner with input and advice, but HR players need to be primary architects for the organization to be successful. Internal architects are more sensitive to the needs of the firm; they are more likely to understand the subtleties required for a successful organization; and they are more attuned to the political realities of creating the right organization.

HR Player as Designer and Deliverer

Why designers and deliverers matter. Architects create blueprints, but without implementation, they become ideals without impact. Turning ideas into action matters because unless creative ideas are implemented, they add no value. Acting on ideas comes when employees who come to work behave in ways consistent with strategy and capability. To shape and encourage employee behavior, HR professionals design and deliver HR practices that both drive and reinforce behavior.

Psychologists have found that people act differently due to information, behavior, and reinforcement. HR practices drive each of these three levers to shape employee behavior in the new virtual organization. Information signals to employees those things that matter most. When new leaders are promoted, when some employees are paid more than others, and when leaders consistently share messages in their communications, signals are sent to employees throughout a firm about what matters most. HR professionals design and deliver HR practices to send information cues to all employees about what matters most. HR practices are a primary source of information signals for employees.

People often become committed to a direction when they behave as if they are committed. In 12-step programs, an early step is for the person trying to change to publicly and volitionally behave as if she or he is committed. This might means stating in public, "I am addicted to . . . and I need to change," sharing with those wronged remorse for the action, and seeking restitution from those wronged. These public acts reinforce a commitment to change. In organizations, employees may be induced to behave as if they are committed by attending training programs where they learn new ideas, by joining teams tasked with clear results, or by participating in standards for performance measurements. HR practices become primary levers for coaxing new behaviors out of employees.

Reinforcement sustains behavior because it ensures that single actions are not isolated, but part of an overall process. In 12-step programs, those who want to change often have "buddies" with whom they share successes and failures, hopes and fears. These sponsors ensure that changes are reinforced. In organizations, reinforcement comes when the HR practices ensure a continuity and accepted bias toward action. While there is a danger of rigidity if the HR practices don't adapt, the HR practices may signal who is likely to succeed around here, who gets the best jobs and financial incentives, and who seems to be in a position of influence. These practices reinforce employee behaviors.

HR professionals as designers know what employee actions are expected in the new organization and they craft HR practices to ensure that these behaviors occur over time. HR practices become an infrastructure that shapes employee action through information, behavior, and reinforcement. At times this shaping is explicit (e.g., a communication that encourages risk taking) and other times the shaping is more embedded in the HR systems (e.g., promoting risk takers to senior jobs and paying risk takers more).

What designers and deliverers do. HR professionals as designers and deliverers align, integrate, and innovate HR practices. To do so requires that HR professionals identify domains of HR choices. Many typologies exist of what are categories or domains of HR practices. We have clustered HR choices into the following domains:

> *Competence:* choices related to hiring, promotion, career development, training, job assignments, and job rotation.
>
> *Rewards and performance management:* choices related to performance appraisal and standards measured and set, financial and non financial rewards.
>
> *Communication:* choices related to gathering and sharing information with both employees inside and stakeholders outside the firm.
>
> *Governance:* choices in organization design and structure, use of high performing teams, and policies.
>
> *Change processes:* choices in learning, making change happen, sharing ideas across boundaries, and institutionalizing change.

HR professionals need to know the choices in each of these categories based on current theory and research. For example, they should know what the theory and research on competency models suggests for hiring, training, and paying leaders of virtual organizations.

In identifying choices in each of the domains, HR professionals create menus of choices that may be made to compete. Menus are often generated by those working in the centers of expertise. These menus offer a set of HR practices that might be used to align, integrate, and innovate HR. Each HR practice on the menu must be certified as innovative, which means it must be based on latest theory and technology.

With menus in mind, alignment occurs as HR practices are matched to the strategy and capability of a business operation. At Pitney Bowes, their office product division that makes copiers and fax machines has a strategy of operational excellence in a price sensitive market. The menu of HR practices allows this capability to be implemented through financial incentives tied to cost reduction. Another division striving to innovate in messaging solutions chooses financial incentives that encourage creativity and innovation.

With menus in mind, integration may also occur. Integration means that the HR practices share a common focus. Staffing, training, compensation, governance, and communication choices must be integrated and focused on common goals. In some companies, employees are hired with skills A, B, and C; then they are trained to do D, E, and F; then paid for G, H, and I. No wonder employees are confused about what they should focus on. With integration around key capabilities, staffing, training, compensation, and other HR practices all integrated around A, B, and C. This was the logic used by Ralph Christensen at Hallmark. Given the firm's strategy and capabilities, his HR team identified a core set of competencies required to ensure success. All HR practices were then both aligned and integrated with these competencies. A similar message was sent to all employees as to what was expected of them. This message was reinforced through the HR practices and through the employee behaviors congruent with the HR practices.

Designers and deliverers implement HR practices with impact. By so doing, the blueprint they create as architects shapes employee action through information, behavior, and reinforcement. When this occurs, the desired virtual organization is embedded in HR practices.

How to design and deliver. In order to design and deliver HR practices, HR players must be current in theory and practice of HR. They must know innovative HR practices deployed by other firms and be able to adapt those ideas to their firm. They need to stay current through active participation in professional associations where ideas are generated and shared. They need to follow the literature and keep abreast of theory and practice. We are continually appalled at the lack of knowledge of HR professionals in their supposed areas of expertise. For example, at a conference recently for Chief Learning Officers, those charged with developing learning agendas for their firms, we were asked how to spell Chris Argyris and to recommend his readings. We would not expect HR generalists to be cognizant of work by Argyris (and other learning theorists), but we would expect Learning Officers to be conversant with his ideas.

Often HR professionals are not active learners, but followers of what others have done. We have advocated that HR professionals become scholars and researchers, constantly screening existing literature and doing research within their own firms. With good research, HR professionals can prioritize HR practices that have the greatest impact. They know where to invest limited resources. They know how to measure impact of the HR investments they make. They become implementers of ideas they architect.

They become not only experts at seeing what needs to be done, but at making it happen.

HR Player as Facilitator

Why facilitators matter. Even with good intent, most change efforts fall short. Personal programs for weight loss, smoking cessation, or exercise often are like New Year's resolutions that begin with enthusiasm and end with quiet fizzles. Likewise, organization programs that begin with great fanfare become fads that lack sustainability. In the new business reality it is easy to fall prey to chasing the latest fads, never to catch up.

HR professionals as facilitators understand the process for getting things done long term, not short term. They have the ability to make change happen and to sustain that change at three levels. First, they help teams operate effectively and efficiently. Teams and teamwork are the cornerstone in virtual organizations, both within the boundaries of the firm and across alliances. HR players as facilitators ensure that all types of teams have the capacity to focus, accomplish, and function effectively. Facilitators build and coach teams. Teams that work well have the capacity to leverage individual excellence and ensure collective performance. In the new business reality, teams are inevitable because no one person has access to all knowledge and information. Teams outperform individuals if managed well. HR facilitators ensure team performance.

Second, facilitators ensure that organization change happens. Rapid organization response can make or break virtual organizations. HR players as facilitators instill a change agenda by assuring that organizations have the capacity and discipline to make change happen. In the new economy, being a change agent is not enough. HR facilitators have to become speed mavens who are not only thought leaders, but past masters for getting the organization to make things happen. As organization facilitators, they bring together resources, focus attention, and make sure that decisions are made quickly and accurately.

Third, facilitators ensure that alliances operate. In the new economy, knowledge will not have to be owned to be accessed. Accessing knowledge and skills through alliances such as part ownership, joint projects, or partnerships becomes the bailiwick of the HR facilitator. Ensuring that ideas, competencies, authority, and rewards move across alliance boundaries becomes important for the rapid response required in the new economy.

In some ways facilitators are like coaches only instead of focusing on a person, they focus on collectives of people in teams, organizations, or alliances. Like coaches, they shape points of view and offer feedback on progress. Only facilitators have the more complicated task of doing so for collective groups of individuals, not just individuals.

What facilitators do. Facilitators ensure that action occurs within teams, organizations, and alliances. The guideposts for actions come from considering who is involved, what information is used, and how decisions are made. Involving the right people increases the probability of commitment. Since any group of individuals creates relationships and political coalitions, HR facilitators must be aware of, and sensitive to, the relationships and political agendas as they involve people in teams and alliances. Processing information becomes facilitators access to influence and power. Since knowledge is power, facilitators need to process what information is required to make a decision and ensure access to accurate information. When facilitators are effective, they collect information that focuses on decisions and ensures action. Making decisions ensures that choices are made with speed and clarity. With the principles of involvement, information, and decisions, HR professionals may increase team, organization, and alliance operations.

HR facilitators increase teamwork when they monitor the quality of the team. They ensure that the right people are on the team to accomplish the team goals, that the right information is generated to make good decisions, and that the team operates well. In facilitating teams, we have used a team checkup as a protocol to assess and improve teamwork. HR facilitators using a team checkup can take a team through a periodic (e.g., quarterly) team diagnosis:

> *Purpose*: To what extent does our team have a clear purpose? Do we know who the stakeholders are for the team and what they expect? Do we have a clear identity and set of goals we need to accomplish?
>
> *Decisions*: How well does our team make decisions? Are we too slow? Too fast? Too risky? Not risky enough? Too autocratic? Not directive enough?
>
> *Relationships*: How well do we work together? How well do we handle conflict? Are we able to encourage differences and disagreement in private, but create unity in public? Do we care for each other? Do we build an environment of trust and respect?
>
> *Learning*: How well do we learn from successes and failures? In the last three months what have we done well and what have we done poorly? What do we learn from both that we can apply to future teamwork?

Engaging teams in this type of diagnosis helps the team surface concerns and issues and increases team effectiveness. In one company, such a diagnosis had not occurred so rifts that would have been minor and handled in a team checkup session become large and complicated and began to inhibit the accomplishment of team goals. At first, venting occurred as team members shared their concerns about each other, but after the venting commitment grew as facilitation helped the team collaborate for common goals.

HR facilitators help organizations make change happen fast when they build discipline into decision making. Decision making occurs when five protocols occur. First, clarity of the decision. A CEO of a large computer company has stated that no one can bring him an issue unless it has been boiled down to a yes or no response. This means that rather than start with information alone, it is imperative to be crystal clear about the decision that the information should help make. Rather than come to a meeting with the issue, "how do we gain better customer service scores?" HR facilitators focus on a few key options and state those options explicitly: "I believe we can improve customer service scores by investing $50,000 in a customer information and response system targeted on the top 10% of our customers; therefore, we should…" This type of specific question then leads to more informed decision making.

Second, who makes the decision? Decisions may be delegated to an individual or a team, but it is critical that the individual or team know that they are responsible. Individual accountability comes when a person realizes that he must sort through information and make a decision. Team accountability comes in a similar way, when the team knows their charge and has accountability and responsibility for doing it. HR facilitators ensure that an individual and/or team is clearly accountable for decisions that need to be made.

Third, when must decision be made? HR facilitators focus on when decisions must be made. They set timelines and hold people to them. The best deadlines are public, for example, a presentation to a senior management group or board of directors. With the commitment to a presentation, decisions will likely be made to accomplish the decision on time. In one company, we saw this done with good teamwork in the following way. The leader of the team knew that a decision needed to be made. He sent an e-mail to all the team members on Monday morning saying that on Friday at 9:00 a.m. a decision would be finalized that would be presented to the executive committee. He laid out the question and parameters and wanted input by Tuesday at 5:00 p.m. Tuesday evening, he condensed this information and on Wednesday morning sent out the synthesis of the input, asking for a second round. This information was collected by Thursday at noon, whereupon he crafted his recommendation for the executives that afternoon and sent it to the team. They had a chance that evening to make final comments before he prepared his remarks for the executives.

Some keys to this success: The decision was clear; the time frame was clear and anchored in a real event. With technology, employees have access to information in ways that were unheard of until recently. Employees who did not participate did so at their own peril and risk. The three rounds enabled employees to have a voice in the decision, to have their input shared, then to recognize the recommendation going forward.

Fourth, what process is needed to make a good decision? The process for a decision may include who needs to be involved, how risky the decision should be, and information required for a good decision. Using a good process ensures that commitment to a decision follows and that quality of decision increases.

Fifth, how will decision be returned and reported? Return and report implies that decisions need to stick, that decisions need to have accountability and follow-up to ensure that what is promised will be delivered. Return and report means that data is collected to track and monitor the decision, that people are publicly accountable for making a decision happen, and that follow up occurs. Stickiness of decision increases when periodic reviews occur, when follow-up measures are tracked, and when incentives drive behavior.

HR facilitators increase organization capacity for speed when they ensure that ideas turn into decisions by deploying a decision protocol. As such, they become speed mavens who are competent and committed to organization action.

Finally, HR facilitators must create cross-alliance actions and commitment. To do so, they must ensure that information moves across alliance boundaries, that knowledge in one firm is shared with another, and that information systems connect people in different organizations. To do so, they must ensure that competence or talent flows across alliance boundaries. They create career paths allowing movement across company boundaries. They build training programs that involve participants from alliance partners. They create incentive programs that encourage joint problem solving. To do so, they ensure shared authority by creating cross-partner teams which collaborate to accomplish goals. When HR actions cross alliance boundaries, HR facilitators increase the probability that alliances deliver intended value.

How to facilitate. In order to facilitate, HR professionals must learn skills in process observation. They need to be able to identify nuances of processes. These processes often include issues related to influence and power, and facilitators know how to manage power and authority. In teams, organizations, and alliances, HR facilitators coordinate power to assure the authority to act. These processes also include resource allocation. HR facilitators know how to amass resources to accomplish goals. These processes include the ability to do team processing, organizational decision making, and alliance management.

HR facilitation has a legacy in organization development work of HR. In OD work, HR professionals would help groups identify their charter and then learn how to collaborate to accomplish their charter. While some of the traditional OD work has been downplayed, the need to facilitate teams, organizations, and alliances continues.

HR Player as Leader

Why HR leadership matters. We have worked in some companies where the senior HR leader advocates the above roles. She coaches leaders, architects capabilities, designs HR practices, and facilitates change. But she has no credibility. She does not manage her own function. She does not practice what she preaches. In these cases, business leaders often pay attention to what they see more than what they hear.

Leading one's HR function earns credibility. In a number of cases, we have seen new heads of HR appointed and immediately face the challenge of running their function. In some cases, this has meant that a disgruntled or dysfunctional employee who the previous leader had not dealt with needed to be managed and/or exited from the firm. Senior HR professionals who do not face up to and implement HR practices within their own functions lose credibility as they advocate ideas to others.

What HR leaders do. The HR function should be the exemplar of how to manage an effective department. As an exemplar, HR should be run as a business. As a business, HR needs the same elements of a business plan. We have argued that an HR business plan has the following elements:

> *Business realities:* What are the strategic priorities of the business? An HR business plan begins with a business plan. We advocate that the presentation a senior business leader would make to the board of directors should also be the first plank of an HR business plan.
>
> *HR vision:* An HR vision articulates in a few words the aspirations of the HR function. We believe an HR vision answers three questions: (1) Who are we (e.g., partners, players, architects, etc.)? (2) What do we do (e.g., increase individual and organizational capability)? (3) Why do we do it (e.g., to build competitiveness, to increase shareholder or customer value)? An HR leader should craft such a vision quickly and simply.
>
> *Deliverables:* We have argued that HR should focus on deliverables more than doables. HR deliverables represent capabilities the firm requires to serve customers and intangibles the firm aspires to in order to build shareholder value. We advocate that strong HR departments have 3–5 deliverables that they focus on.
>
> *HR investments:* The HR choices advocated for the firm in the design and deliver role need to be applied within HR. HR leaders need to pay attention to HR competence, training, rewards and recognition, com-

munication, and governance. When HR practices used for the firm are also deployed within HR, they have more credibility and legitimacy. Too often we see HR professionals not receiving training or performance reviews that they manage and advocate.

HR governance: HR investments may be implemented by line managers, HR professionals in centers of expertise, service centers, corporate, or business units, and/or external alliance partners. HR leaders must determine who has what accountability and responsibility for HR to ensure that work of HR is governed appropriately.

HR measures and actions: HR leaders need to prepare accountable action plans to track and monitor the performance of the HR function and HR practices. These measures create a balanced scorecard for HR and actions that increase scores on this scorecard.

HR professionals: HR leaders need to increase the quality of their HR professionals by continually articulating and investing in HR professional development.

The above seven elements of an HR plan imply that HR is run like a business, with a context, vision, strategy, and priorities.

This HR business plan should be shared both inside and outside the HR function. Inside it should serve as a compass for HR action, offering direction and intention. Outside, it should increase credibility of the HR function because the function practices what it preaches and models good leadership behavior.

How to lead. In order to lead, HR players need to apply a leadership model to themselves. The leadership model we advocate follows a simple equation: effective leadership = attributes * results. Attributes means that leaders know and do things that ensure they do things the right way. Results means that leaders ensure outcomes from their knowledge and actions. HR leaders need to define clearly both the behaviors they should demonstrate as leaders (e.g., setting clear goals, being decisive, communicating inside and out, and managing change). They also must define clearly the results they must deliver.

CONCLUSION

We have laid out an aggressive, new agenda for HR professionals. The agenda begins with a context, that being the new business realities with customers, technology, industry, and investors. This context creates a virtual organization, where transaction costs are minimized through networks and alliances. Emerging and traditional organizations are experiencing to different degrees the reality of the virtual organization. In this organization, HR professionals need to be players. We propose that they do so by mastering five roles: coach, architect, designer, facilitator, and leader. We believe that when HR professionals learn these roles, they add enormous value to their firms, their profession, and themselves.

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Part III

HRM PROGRAMS

In Part III, consideration is given to human resource management programs to be delivered by the human resource department in order for human resource to add value to virtual organizations. In essence, the chapters in this part of the book ask human resource management scholars and practitioners to look beyond the usual practices in traditional human resource management functional areas toward new areas of study and practice that may be needed in virtual organizations. DeCaprio (Chapter 6) examines both the processes and content associated with job analysis and makes the case that while job analysis is still needed in virtual organizations, it will need to change to meet the special needs of virtual organizations. Ellingson and Wiethoff (Chapter 7) describes the new competencies required of employees in virtual organizations and explains how organizations will need to modify existing recruitment and staffing procedures t best assess these new competencies. Noe and Simmering (Chapter 8) further develop the concept of competencies in virtual organizations addressed by DeCaprio and Ellingson and Wiethoff. Moreover, they address training delivery methods needed to develop these competency sets as well as point to how the organizational culture needs to be supportive of learning initiatives. Cleveland, Mohammed, and Skattebo (Chapter 9) advances a set of new issues that must be considered when performance management is considered in the context of virtual organizations. These new considerations include the measurement of performance at the team as well as individual level of performance, time issues, and contextual factors likely to influence ratings. Heneman, Tansky, and Tomlinson (Chapter 10) point to the fact that there are multiple organizational structures associated with the concept of virtual organizations and show what types of reward structures are best suited for these different types of organizational structures. Lewicki and Dineen (Chapter 11) review the basic principles of negotiation and then go on to describe how these basic principles must be altered for people to be more effective with negotiations in a virtual environment.

CHAPTER 6

JOB ANALYSIS AND COMPETENCY ASSESSMENT IN VIRTUAL ORGANIZATIONS

Kathryn M. DeCaprio

INTRODUCTION

Traditional methods of job analysis and competency assessment do not meet the needs of the virtual organization. Virtual organizations and the jobs that make up these organizations have much more dynamic needs than the traditional organization. There is very little time or tolerance for traditional forms of competency assessment and job analysis in the virtual organization. So what will work? The core purpose of job analysis and competency assessment is still very necessary for workers and organizations. This chapter examines virtual organizations, what needs they have in the areas of job analysis and competency assessment, and how traditional forms of job analysis may be altered to better fit the special needs of the virtual organization.

DEFINITION OF JOB ANALYSIS/COMPETENCY ASSESSMENT

Job analysis and competency assessment have been utilized for years in organizations. These activities have a wide variety of uses and at their core they clearly identify and assess the value of work and workers. Federal laws support and even demand job analysis be completed. "Job analysis is the process of defining a job in terms of tasks or behaviors and specifying the education, training, and responsibilities needed to perform the job successfully" (Ivancevich & Glueck, 1986). Beyond this basic definition we must keep in mind both the work-oriented and worker-oriented information provided by job analysis. Work-oriented data looks at work-related information including task activities or worker function. Worker-oriented information identifies employee specifications or competencies commonly known as knowledge, skills and abilities or KSAs. KSAs identify what is required to perform successfully on the job (Gatewood & Feild, 1987). Job analysis is used in preparation of job descriptions, creation of job specifications, recruitment and selection, performance evaluation, training and development, career planning and development, compensation, safety, and job design (Ivancevich & Glueck, 1986).

"Competencies are broader sets of human attributes than the narrowly defined KSAs of the past. Competence means demonstrated mastery of our proficiency in a determined function, and competency refers to a personal attribute or human capability. Thus, competence assessment involves the observation of worker performance on key work behaviors" (Sanchez & Levine, 1999), Due to the legal and practical application of job analysis and competency assessment they continue to be a necessary part of an organization's ability to define and organize work and workers.

DEFINITION OF VIRTUAL ORGANIZATION

This chapter will look at virtual organizations specifically in the high-technology industry. By way of computers, the Internet and networking, virtual organizations exist today primarily in the high-tech industry. The nature of the products and services created by high-tech organizations often do not require many of the structures of the traditional work environment. One example of a traditional work environment structure is unionization. Far fewer high-tech organizations are unionized and can therefore be more flexible in the way they organize work than can a traditional unionized organization. So what makes an organization virtual?

In a sarcastic look at new executive buzzwords Fortune magazine's Thomas Stewart (1997) described the virtual organization as an organization that had combined reengineering with outsourcing to create a virtual organization. "One (organization) in which you get assets off your balance sheet and plunk them down on someone else's books" (Stewart, 1997). The definition of virtual organization used for this chapter is around high-tech virtual organizations, which are fast, flexible, connected, and focused. These organizations focus on best-in-class core capabilities and outsourcing slices of their activities that others do better, thus allowing them to remain focused, and yet nimble enough to shift, as they need to move to the next project (Christensen, 2000).

Work can be done differently in a connected organization and workers are demanding it be done differently given the capabilities of the Internet (Weinberger, 2000). The Internet, networks and computers have so significantly changed the nature of how work can be done in an organization, that it can more easily be virtual. In addition to streamlining to core or best-in-class functionality the virtual organization is one that does not require that all employees sit together. It does not have full responsibility to run all aspects of an end-to-end business on its own. The workers may be structured in a part-time, contract, telecommuting or day-extending basis. Co-workers on a single project may never even meet each other.

COMPARE AND CONTRAST VIRTUAL AND TRADITIONAL ORGANIZATIONS

Virtual organizations in high-tech differ from traditional organizations in a number of fundamental ways. Table 1 outlines twelve of these differences. As there is no concise or common definition for the virtual organization at this time, the virtual organization attributes outlined are those based on the definition presented in this chapter. These attributes are ideal and all attributes may not need to be present for an organization to be considered virtual. Similarly, traditional organizations may have some aspects of the virtual organization. The attributes in the table outline how the nature of work takes on a different set of expectations for both the workers and the employer in an organization, including the way work is structured and how it gets done. The virtual organization as mentioned earlier has streamlined itself to core efficiencies. Work happens quickly and change is part of the routine. Assuming most human resource professionals have worked or do work in traditional organizations it is more important that this chapter and Table 1 highlight the unique characteristics of the virtual organization.

Table 1. Contrasting Attributes of Virtual and Traditional Organizations

Organization Attribute	*Virtual Organization*	*Traditional Organization*
Streamlined	Outsource much of work beyond core line-of-business	Fully employ all functions inside and outside of core business.
Flexible	Able to shift focus and change way of working to meet market and customer needs	Decision-making structure and highly specialized roles make shifts in work slow and often difficult

Table 1. Contrasting Attributes of Virtual and Traditional Organizations (Cont.)

Organization Attribute	*Virtual Organization*	*Traditional Organization*
Focused	Clearly identified customer and market. Concentrates on core line-of-business	Works on variety of market opportunities at once, thus no clear identification of customer or marketplace
Communication	Free flowing without regard to level or role in organization. Email, instant messaging, internet allow open sharing of information and ideas between and among employees and customers. Decision- making happens between employees at all levels and customers.	Occurs through scheduled meetings in conference rooms, from leaders to employees. Formal hierarchal memos. Decision-making is done at top and communicated down.
Hyper time	The World Wide Web, Internet and intranet allow employees to access information on their own time. Can be a quick-hit or in-depth analysis, occurring at any time, thus allowing them to move more quickly through information gathering, analysis and decision-making.	More formal process for information gathering, analysis and decision-making, including meetings, conferences, memos, paper-pencil surveys, causing these processes to take longer period of time than when utilizing the Internet.
Organization Structure	Significant peer relationships and sharing of information and decision-making without regard for title or level. Decentralized teams work together on projects.	Organizational chart is hierarchal, decision-making happens at the top. Appropriate level of management often brought in to move a project forward.
Management of work and workers	Blurred lines between personal and work time. Deadlines driven by customer needs. Variety of worker status from part-time to telecommuting, off-site, etc.	Hierarchal structure of managers and employees reporting to managers. Formal working hours. Workers are fulltime regular and may have unionized organization to work.
Career path	Lateral movement opportunity. Contribution that makes a difference for the customer is what is needed to increase value. Less hierarchal, more project, oriented career path.	Moves into management or supervisory role are coveted. Increased decision-making power comes with increased management role.
Information	Constantly shared by many	Held by a few; distributed formally
Office building	Workers are part-time, off-site, telecommuting. Open work space	All workers and management at a single location

Table 1. Contrasting Attributes of Virtual and Traditional Organizations (Cont.)

Organization Attribute	*Virtual Organization*	*Traditional Organization*
Professionalism	Assessed by contribution on projects important to customer	Assessed by attire, meetings invited to and invitation to and formality of presentation and participation in meetings.
Customer relationships	Very close to workers. Involved constantly in progress of work. Set deadlines based on need	May be working to identify customer. Customer relationships are formal and may be distant. Customer included in project status at very beginning and then near or at end of project.

Note: (Weinberger, 2000)

Microsoft is working to identify what its workers of the future want out of a job. Tammy Savage heads a virtual team of 21 people from inside and outside of the company to examine what these workers want from their jobs as well as what the "net generation" wants in its products. Savage notes that the workers of tomorrow are changing corporate expectations. Her observations on how the next/net generation are organizing and working support Weinberger's ideas of needs for the hyperlinked organization. The Internet and intranet utilization by workers in the virtual organization cannot be ignored. Weinberger refers to organizations' whose workers embrace this technology as the hyperlinked organization. "Teens and children she saw were communicating and using technology differently than adults." The realization may seem obvious, but the depth of the difference struck home in 1996 when Savage observed a group of Australian and Singaporean kids working on a science project. "Despite minimal training, they had figured out how to do measurements on their computers, hold discussions online, and maintain a joint Website." The teens formed a way of working that forecasts how many will work in the future and how they are working in organizations today. When asked, "What's most important to you in your ideal job?" ten of Microsoft's 500-plus summer interns responded somewhat how you'd expect workers of a traditional organization to respond but in addition many responded very much like workers from a virtual organization. "Good people, a balance between work and life, a good environment. Flexible hours, telecommuting is really important, enough technological infrastructure to get my job done" (Chen, 2000).

Weinberger cautions that many traditional organizations may be unconsciously becoming virtual at some level by having a good technological infrastructure, as mentioned by the Microsoft intern. If an organization has given its employees this infrastructure including access to the Internet and ability to set up intranets and perhaps instant messaging then a virtual way of working may already exist within the traditional organization (Weinberger, 2000).

What impact does that have on the way work gets done and they way jobs should be analyzed? What complexity does this add to the competencies the organization may look for in future employees? What underlying requirements does the organization have around being successful that are under the radar screen of the human resource manager, recruiter or hiring manager trying to analyze, evaluate, recruit for and manage various positions? "For example, by the time Sun Microsystems got around to counting, they had eight hundred intranets. And when Texas Instruments put in their corporate intranet, they invited everyone who had one already in place to register with the top-down one. Within a few months, two hundred and fifty internal sites had registered, and no one knows how many unregistered ones there were." Lucent Technologies, according to an article in the Wall Street Journal found similar behavior when it brought together a product-development team of five hundred engineers across three continents and thirteen time zones (Weinberger, 2000). Workers are gathering information, sharing data, analyzing trends, making decisions and get a significant amount of quality work done through this new venue of sharing online.

Clearly not all organizations will move from being traditional to virtual. Even for organizations that are virtual in some divisions or for some period may move in and out of being virtual due to the nature of the business. Organizations moving to being virtual have to be careful. As noted by Clayton M. Christensen (2000) in a recent *Businessweek* Online article,

> When product or service performance is more than good enough—so that companies must compete on the basis of speed, flexibility and cost—less integrated (more virtual) companies will have the upper hand. But when performance does not yet satisfy customers' needs, integrated companies will have the advantage—even in the 21st century. Cisco has efficiently outsourced much of its manufacturing to suppliers as well as much new-product development to startups it acquires. But as Cisco has moved into new and the most performance demanding tiers of its markets—particularly optical networks—it is being forced to integrate, performing many product-design and manufacturing activities internally. Cisco's competitors are finding that they have to become less virtual in order to compete.

COMPONENTS OF JOB ANALYSIS AND COMPETENCY ASSESSMENT APPLIED TO VIRTUAL ORGANIZATIONS

Regardless of if an organization is truly virtual there are new forms of work and workers emerging. Business professionals and researchers as well as human resource professionals and researchers are recognizing these trends. The trends toward these new and different ways of working have been commented on for more than ten years. However, the most recent five to eight years have seen significant differences from the prior five to eight years. Technology infrastructure made readily available to large numbers of workers have made the suspicions or "direction business is heading" a reality today. Just within the last five years have the terms virtual organization and "connected" organizations become common language. These organizations are now available to researchers. In-depth studies of these organizations and what methods of job analysis and competency assessment work best for the environment can now be assessed. The recommendations in this chapter as well as other theories can be tested within truly virtual organizations.

Any organization providing World Wide Web access to its employees is facing new forms of work (Weinberger, 2000). In a Lund and Hansen (1986) examination of emerging computer and telecommunications technologies, they note the effects of these technologies will be enormous because they are universal: they apply to all industries. Their research indicated that there will be changes in the nature of the skills demanded by advanced technology. The level of skill required for any job, however, will depend on which elements of the work are combined to make up the job (Marjchzak & Klein, 1987).

Anything that greatly impacts the way work is done and structured can be assumed to influence the way effective job analysis can be conducted. Sanchez and Levine (1999) also recognized the emerging and changing nature of work and more dynamic organizations. They applied these changes and examined their impact on the process of job analysis. Schneider and Konz (1994) recognized the changing work demands due to technology and dynamic organizations and proposed a job analysis process through which the future skills required by the job can be identified.

Schneider and Konz (1994) worked on incorporating job futuring into the job analysis process. Their work consistently identified changes in each of the five faces of the environment (Katz & Kahn, 1978). As Schneider and Konz (1994) note it's important to monitor these features when analyzing jobs and assessing competencies in virtual and traditional organizations.

1. Societal values,
2. Political/legal,
3. Economic/markets/labor,
4. Information/technological,
5. Physical/geography.

The 1994 work of Schneider and Konz is very relevant to virtual organizations, as previously mentioned they are very dynamic, constantly in the throws of change. The concept of the work-oriented and worker-oriented data changing from what was planned on day one of the job certainly exist in the virtual organization as noted by many of the attributes in Table 1. This idea of considering future job changes must be considered when recommending an approach to job analysis for the virtual organization. The remedied job analysis approach recommended by Schneider and Konz (1994) however will not work as described when applied to the virtual organization. The recommendation of identifying a number of Subject Matter Experts (SMEs) and getting together with job incumbents and managers for multiple meetings for numerous hours of review will not be tolerated by the virtual organization.

Sanchez and Levine's (1999) support of the changing work environment does not go so far as to identify organizations as virtual but acknowledges the changes that can be seen now with the advent of the electronic revolution and global economy. Additionally, the Sanchez and Levine (1999) work changes the nomenclature from job analysis to work analysis. "The term work analysis is used . . . to emphasize that rather than defining, documenting and rigidifying job boundaries, the analysis of work should serve to propel the change process." The contrasting factors of job analysis identified by Sanchez and Levine in the emerging changes of today's dynamic organizations do an excellent job of supporting the attributes seen in the virtual organization as noted in Table 1. It is worthwhile noting how the emerging factors identified by Sanchez and Levine apply directly to and expand on the challenges the virtual organization faces with job analysis.

Table 2. Contrasting Factors in Job Analysis

Traditional Factor	*Consequence*	*Emerging Factor*	*Consequence*
Division of labor and clear-cut labor management distinction	Preoccupation with job boundary definition and job worth	Cross-functional responsibilities and blurring of labor-management distinction	Diffuse job boundaries and responsibilities
Static jobs	Fixed and long-lasting job requirements	Dynamic work assignments	Work requirements in continuous flux
Minimal interaction with coworkers	Analysis of within-job activities	Maximal interaction with coworkers	Analysis of interactive activities
Accountability to superiors	Importance of incumbent-supervisor interaction	Accountability to internal and external customers	Importance of incumbent-customer interaction
One-way relation to technology	Prescribed job responsibilities	Two-way relation to technology	Self-determined responsibilities
Long-term employment	Static work activities and conditions of employment	Short-term employment	Continuously evolving sets of work activities and conditions of employment

Table 2. Contrasting Factors in Job Analysis (Cont.)

Traditional Factor	*Consequence*	*Emerging Factor*	*Consequence*
Cultural homogeneity	Emphasis on technical tasks	Cultural diversity	Emphasis on emotional and interpersonal tasks
Tolerance for budgetary slack	Time-consuming analytical procedures	Cost containment	Streamlined analytical procedures

Source: Sanchez and Levine, 1999

In examining the components of job analysis and competency assessment and how they apply to virtual organizations it is important to evaluate the following phases of analysis and assessment.

1. Participants.
2. Methods of data collection.
3. Types of data.
4. Level of analysis

Table 3. Job and Competency Analysis Differences between Traditional and Virtual Organizations

Characteristic	*Virtual Organization*	*Traditional Organization*
Participants	Incumbents, supervisors, HR professionals, internal and external customers, co-workers	Incumbents and SMEs
Methods of Data Collection	On-line surveys, instant messaging, on-line chat sessions, electronic bulletin board collection, video- and tele-conferencing, electronic performance monitoring	Meetings, interviews, facilitated discussions, inventories, position descriptions
Types of Data	Detailed so appropriate selection, performance management, and career development can be done	Detailed so appropriate selection, performance management, and career development can be done
Levels of Analysis	Two to three levels of analysis can be done. Level one: competencies at organization or division level and apply to job family or job function. Level two: responsibilities, activities, KSAs of job family or job function structured into career path. Level three: education, experience, individual excellence points and specific specialized skills for a particular job.	KSAs, education and experience needed for particular job.

Participants

Historically incumbents and SMEs have provided the vast majority of information in job analysis and competency assessment. Given everything identified about the virtual organization, its open communication, dynamic nature, close ties to customers and non-traditional work environment it is argued that having only incumbents and SMEs will short-change the value of the job analysis and competency assessment. Instead it is recommended that the participants include: supervisors, incumbents, human resource professionals, internal customers, external customers, and co-workers. The virtual organization's customers (both internal and external) are so closely tied to the organization's processes throughout the relationship that their input about a new job function or particular competencies by a position can be very helpful for effective customer focus moving forward. Customers can provide a lot of quality worker-oriented data. They can answer critical questions around expectations, challenges, future needs and impending change for the worker. This must be balanced with the input of incumbents and supervisors.

Supervisors and incumbents who have been in a role for some time are instrumental in identifying the worker-oriented data for a job. In addition to the traditional "what is done, how is it done and when is it done?" Supervisors and incumbents are very instrumental in helping answer the following questions.

> What qualities help make workers in jobs successful?
> What is the scope of influence for workers in this function?
> What impact can individuals in this job have on products and technology for the organization?
> What education and experience are required or preferred?
> How would individual excellence and team member excellence be described for this function?

This is in addition to the traditional work-oriented data including KSAs, responsibilities, and activities. Human resource professionals within an organization can use their expertise to assist in facilitating the job analysis and competency assessment to ensure the appropriate parties are involved in the process and contributing in the areas mentioned above. In addition the human resources professional can, as noted by Sanchez and Levine (1999) be very effective in assessing need for trainability of a job function as well as the importance of trainability in workers.

Methods of Data Collection

The methods of data collection that have historically been used include meetings/interviews with incumbents that range from discussions with the human resource manager, to facilitated discussions among incumbents, to identify KSAs and assess the job. Incumbents may also have been asked to complete inventories or position description templates that describe a variety of work and worker-oriented data. The same methods described are also utilized by SMEs, which include a cross-section of incumbents and supervisor or anyone considered particularly knowledgeable about a position. As mentioned earlier numerous, lengthy meetings are not practical for the virtual organization. As mentioned in Tables 1 and 2 there is extensive communication and interaction among workers of virtual and emerging organizations. This makes collecting information from incumbents about their jobs much easier. Many organizations today use on-line surveys to collect job information from incumbents. This is a good method of getting information from workers and supervisors who regularly utilize email or an intranet. In addition, other electronic methods of data collection are recommended for the virtual organizations include instant messaging, on-line chat sessions, and electronic bulletin board collection. These are similar to the types of collection that can occur over email and intranet but may happen more informally with a facilitator and can happen in a more impromptu fashion than a formal survey. Video- and teleconferencing are also good methods of data collection if participants need to view or listen extensively to materials that may be difficult to view or listen to on-line. Any of the above-mentioned forms of data collection should be used based on preferences of participants. It is recommended that the participants discuss up-front what method of data collection works best in their environment.

Another method of data collection includes electronic performance monitoring (Sanchez & Levine, 1999) This method has merits for jobs such as high-tech customer service, which are currently monitored for quality assurance. Measurements such as nature and length of call and other position information can be collected through electronic performance monitoring. This method of data collection is not recommended for virtual organization jobs that do not naturally use some type of monitoring for quality-assurance or other reasons. With significant peer relationships and open communication of virtual organizations the electronic performance monitoring may seem very imposed in this type of environment and may not be successful for job analysis or competency assessment purposes.

Types of Data and Level of Analysis

Types of data and level of analysis are also important considerations when examining job analysis and competency assessment for the virtual organization. For the virtual organization it is recommended that the types of data meet the criteria of being open to the dynamic nature of the jobs. This means the type of data collected cannot be overly cumbersome to collect and must be detailed only to a level so appropriate selection, performance management, and career development can be done.

It is recommended that the level of analysis be done at two to three levels depending on the needs of the organization. In order to truly assess the appropriateness of these recommended levels more research needs to be done in some virtual organizations. This is a recommended next step for a human resource researcher.

The first level of analysis recommended include competencies at the organization or division level and applied more definitively to the job family or function. As Sanchez and Levine noted, these competencies are the broader set of human attributes than more narrowly defined KSAs. An organization can assess what is important to it at a broad level and then select particular competencies that are important for a job family or function. For example the organization's competencies may have balancing components like teamwork as well as individual excellence and long-term approach balanced with more immediate results. Then for a particular job family more specific competencies, which support the organization's broader competencies, can be developed. As an example, under long-term approach it may be identified for a marketing job family that strategic thinking is important as well as decision-making, which falls under the broader competency of more immediate results. These competencies and their supporting components work to identify the values of the organization and can more specifically identify the needs for the particular job family or function. These competencies are very useful in the areas of level assessment, selection, performance management and career planning. As noted by Sanchez and Levine, competencies are broader and do not actually describe what is done in a job an additional level of analysis must be done.

The second level of analysis should be responsibilities and activities as well as knowledge, skills and abilities for a job function or job family. For organizations concerned about career growth it may be best to structure these for job families and the career paths an individual can follow in that path. Creating a guide for a career family would include information about the work and indicate the increasing level of responsibilities for the different levels of jobs in the family. The guide or this second level of analysis can include data points including responsibilities and activities, scope of influence, knowledge and skills, customer impact. These data points can be populated through the methods of data collection mentioned earlier and as discussed should keep in mind current as well as future needs of the job.

The third recommended level of analysis is education and experience as well as identification of points of individual excellence or expertise for a single job. These are specific specialized skills or needs that may differentiate one individual in a job family from another. The supervisors or incumbents may easily identify these, and when combined with the first and second levels of analysis should provide a fully comprehensive job analysis. At the same time depending on an organizations culture and needs this third level of analysis may not be necessary. The virtual organization's trait of having cross-functional roles may make this level of analysis unnecessary in some cases.

Competencies can be developed once then used long term and revisited only every few years to ensure they meet needs of the organization. Second level of analysis can be revisited more frequently but as it is developed for a job family or function it should also be meeting needs of organization for at least a year unless job functions drastically change. The third level of analysis is the most flexible and can be used for individual positions rather than job families. As the first and second levels of analysis are longer-term activities the impact on the organization is minimal on an ongoing basis. In addition by providing continuity of tools and values for an organization or division, and then consistency across job family or function, the job analysis and competency assessment may be more legally defensible. In addition the three levels of analysis recommended reduce the time hit on the organization.

Job analysis and competency assessment for the virtual organization can be a valued as well as a legally required process for an organization. It is critical that the approach taken in these processes meet the unique needs of these organizations. The way work is done and the needs of workers are changing and must be acknowledged. Through a streamlined and flexible approach to job analysis and competency assessment one can meet the needs of the virtual organization.

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CHAPTER 7

FROM TRADITIONAL TO VIRTUAL

Staffing the Organization of the Future Today

Jill E. Ellingson and Carolyn Wiethoff

ABSTRACT

Virtual organizations are newly evolved entities that increasingly define today's work environment. Such organizations are designed to be dynamic, flexible, and responsive to organizational and external change. This chapter focuses on issues related to recruiting and selecting individuals into virtual organizations. As a starting point, a working definition of virtual organizations is offered. This is followed by a thorough discussion of those individual characteristics, such as general mental ability, risk-tolerance, and openness to experience, likely important for functioning successfully in this type of work context. Each characteristic is presented with a brief description, an outline of past perspectives on its relevance, and when available, a discussion of research that provides evidence linking the characteristic to performance in virtual organizations. Potentially effective recruiting strategies are reviewed including a discussion of the power of self-selection and internet recruitment. The chapter continues by outlining those selection tools applicable to a virtual organization context. Specific focus is given to on-line assessment and interviewing. Recognizing that virtual organizations pose some unique challenges, the chapter closes with a discussion focused on issues such as the skill gap resulting from a depth versus breadth tradeoff, efficient validation strategies, placement in virtual teams, and suggested directions for future research and innovation.

INTRODUCTION

It has been called "The New Corporate Model," "The New Corporate Architecture," "The Boundaryless Organization," and "The 21st Century Network Organization" (Ashkenas, Ulrich, Jick, & Kerr, 1995; Byrne, Brandt, & Port, 1993; Dess, Rasheed, McLaughlin, & Priem, 1995; Snow, Miles, & Coleman, 1992). Corporate sages and management scholars alike have proclaimed the birth of a new organizational form, *the virtual organization*. Touted as the answer to increased competition and demanding technological change, virtual organizations represent an approach to strategically managing business that is dependent on technology, opportunism, and excellence (Byrne et al., 1993). For organizations faced with global competition, the opening of new markets, and an Internet information superhighway, there is the potential for substantial gain by forming key alliances based in partner core competencies. This potential is attractive leading many companies to attempt this type of organizational change. Taking their cue from industry leaders such as IBM, Verifone, West Bend, and Eastman Kodak, all organizations that have fostered successful virtual arrangements (Boudreau, Loch, Robey, & Straud, 1988; Cascio, 2000; Crandall & Wallace, 1998), companies that adapt to this new form will likely be challenged by implementation and human resource management questions.

This chapter focuses on issues related to recruiting and selecting individuals into virtual organizations. Issues that will be addressed include identifying those recruiting strategies that have the potential to be effective in this context, outlining those characteristics likely to be important for functioning successfully within virtual organizations, identifying those selection tools applicable to a virtual organization context, placing incumbents in virtual teams, and evaluating selection related issues unique to virtual organizations. The chapter ends with a discussion of directions for future research and innovation.

WHAT IS A VIRTUAL ORGANIZATION?

The concept of a virtual organization is ambiguous and evolving. The term *virtual organization* has been defined and redefined numerous times as management thinkers struggle to capture how a virtual organization manifests itself within today's work environment. Clearly, a *virtual* organization is different from a *traditional* organization—on this, most agree. The ambiguity arises when trying to clarify exactly what a virtual organization is and in what context it exists. From a staffing perspective, understanding the form of virtual organizations is important as it represents the first step toward identifying those individuals likely to emerge as the best hires. Simply put, it is important to understand the job that one is hiring for, before determining who should be hired.

In the face of an evolving concept, we offer a working definition of virtual organizations that captures dimensions of these entities important from a selection perspective. First, work within virtual organizations is project-based. Individual contributions to work are determined by the knowledge and expertise that one has to offer versus the job title one possesses. Work requires the formation of networks of empowered knowledge workers ready to continually learn and contribute (Jarvenpaa & Ives, 1994; Sparrow & Daniels, 1999). Success in virtual organizations is dependent on individuals contributing their respective knowledge and resources to meet project objectives (Bush & Frohman, 1991; Byrne et al., 1993; Mohrman, 1999). Workers must also emerge as cross-trained, multi-functional specialists capable of demonstrating skill breadth (Cascio, 1999). The flow of information is generally unrestricted so that individuals will have the means necessary to leverage their core competencies toward reaching project goals (Crandall & Wallace, 1998; Nagel & Allen, 1993; Snell, 1994).

Second, control and authority resides within the individuals. The empowerment of workers to exercise their expertise creates a work environment that emphasizes autonomy and self-management (Crandall & Wallace, 1998). Individuals have the freedom to experiment, take risks, and be entrepreneurial (Cascio, 1999). The absence of bureaucratic hierarchies requires that individuals monitor their own behavior and the behavior of their peers (Nagel & Allen, 1993).

Third, a virtual organization is dependent on collaboration and cooperation. Virtual organizations conduct work using virtual teams that pursue a common strategic objective (Anderson, Hakansson, & Johanson, 1994; Boudreau et al., 1998; Cascio, 1999; Cohen & Mankin, 1999; Dess et al., 1995). Teams are formed by bringing complementary individuals together who have the requisite knowledge and skill (Crandall & Wallace, 1998; Snell, 1994). These alliances may involve individuals coming together from other firms, other divisions, other departments, and/or other countries. The reciprocity and interdependence present in this type of environment requires that individuals are able to work in conjunction with others, recognizing the valued contributions of each team member (Bush & Frohman, 1991; Jarvenpaa & Ives, 1994; Mohrman, 1999). Individuals should be able to function within varying frames of reference and be cognizant of other perspectives in order to facilitate the accomplishment of project goals (Bush & Frohman, 1991).

Fourth, because the organization of work is project-based and team-based, the working environment is flexible, dynamic, and fluid (Anderson et al., 1994; Byrne et al., 1993; Crandall & Wallace, 1998; Jarvenpaa & Ives, 1994; Sparrow & Daniels, 1999). This lends an unpredictable component to virtual organizations, as individuals must deal with an ever-changing environment consisting of multiple projects, products, and team members. Teams are temporary entities, formed to accomplish a particular goal and then disbanded when the objective is met (Boudreau et al., 1998; Byrne et al., 1993; Dess et al., 1995; Nagel & Allen, 1993). Individuals do not hold specific positions within the company structure. Instead, individuals move in and out of teams wherein their responsibilities, roles, and reporting relationships change (Snell, 1994).

Fifth, work is conducted across time and space whenever, wherever, and with whomever offers the best skill set given current needs. This is possible in virtual organizations because advanced communications networks, multimedia, and groupware create a workplace driven by the Internet. Individuals are connected electronically, resources are distributed electronically, and knowledge is spread electronically. In this way, virtual organizations are enabled by technology (Byrne et al., 1993; Cascio, 1999; Crandall & Wallace, 1998; Jarvenpaa & Ives, 1994; Nagel & Allen, 1993). These entities leverage technology to facilitate teaming between geographically dispersed members and information exchange between virtual partners (Barnatt, 1997; Boudreau et al., 1998). However, the luxury of advanced technology does not preempt the need for face-to-face interaction between individuals (Barnatt, 1997; Bush & Frohman, 1991; Jarvenpaa & Ives, 1994). Indeed, virtual organizations are not determined by the existence of state-of-the-art technology. Rather, technology serves as a tool for conducting work in this new way. Face-to-face interaction will still be necessary. Yet, it will likely take a different form involving new or varying parties, who meet in less traditional locations, less frequently.

Equally important to understanding the dimensions underlying virtual organizations is the recognition that truly virtual organizations do not yet exist. Instead, the concept stands as a working model. Many of these dimensions are present in organizations today, especially in those firms that push the envelope to conduct business in a state-of-the-art fashion. Most organizations are virtual to a degree. As the concept evolves and as competitive pressures increase, work environments will likely continue to strive toward becoming truly virtual.

CHARACTERISTICS IMPORTANT FOR WORK IN VIRTUAL ORGANIZATIONS

Once we understand the work environment that characterizes a virtual organization, we can speculate about those worker attributes likely to be important in determining successful performance. In other words, what characteristics are likely to enhance an individual's ability to perform within a dynamic and ever-changing work environment? Similarly, which characteristics are likely to determine whether an individual will be successful in an environment that requires continuous learning? An evaluation of the dimensions discussed above points to a number of characteristics likely to be important. In addition, practitioners and scholars have added their perspective on which characteristics they feel are important for individuals working in contexts that are similar to what one might experience in a virtual organization. We drew from these perspectives, extending and combining these opinions with our own to produce the following list of characteristics. Current research provides initial evidence to confirm the importance of some of these characteristics. However, this research is limited, thus requiring that beyond discussing what we know, we must also turn to what we speculate. Therefore, the following list reflects a synthesis of research findings, alternative perspectives, and our own theoretical speculation. Table 1 summarizes and offers a brief definition of each characteristic. What will quickly become clear is our choice to focus on general characteristics versus specific competencies. Our focus echoes arguments that in the context of rapidly changing job demands, selection based on general, broad characteristics will benefit organizations more than selection based on specific, narrow competencies (Rothstein, 1999).

Table 1. Individual Characteristics Important for Work in Virtual Organizations

Characteristic	*Definition*
Cognitive ability	Verbal comprehension, Quantitative skills
Job knowledge	Reasoning ability, Technical skills and knowledge
Communication skills	Speaking, Writing, Enquiring, Listening
Interpersonal skills	Collaborating, Cooperating
	Social sensitivity, Involvement
Conscientiousness	Dependable, Persistent
	Achievement-oriented, Cautious
Extraversion	Outgoing, Assertive, Sociable, Active
Agreeableness	Courteous, Considerate, Warm, Cooperative

Table 1. Individual Characteristics Important for Work in Virtual Organizations (Cont.)

Characteristic	*Definition*
Openness to experience	Curious, Imaginative
	Broad-minded, Culturally-sensitive
Self-efficacy	Confidence in ones capability
	Perseverance, Task-related coping
Tolerance for ambiguity	Preference for ambiguous situations
	Resilience, Emotional stability, Stamina
Learning orientation	Preference for challenging situations, Skill acquisition
	Belief in malleable nature of traits
Risk-tolerance	Preference for risk, Challenge orientation
	Openness to experience, Ambiguity tolerant
Intercultural style	Sensitivity to cultural diversity
	Flexibility, Social competence, Initiative

Characteristics

Cognitive ability and job knowledge. Behling (1998) argued that cognitive ability should serve as an excellent indicator of future performance when employees will be engaged in extensive problem-solving, provided with a high degree of autonomy, asked to acquire new skills on the job, and forced to adapt quickly and effectively to change. Rosen, Furst, Blackburn, and Shapiro (2000) extended Behling's observations to individuals working in virtual teams. Sparrow and Daniels (1999) argued that it may be more important to select individuals for virtual organizations based on their capacity to acquire skills. Indeed, first and foremost, virtual organizations, epitomized by a changing unpredictable workplace, require workers who have the knowledge and skill necessary for contributing to organizational performance, functioning effectively in a team environment, embracing change, and engaging in continuous learning (Cascio, 2000; Crandall & Wallace, 1998; Klimoski & Jones, 1995; Lipnack & Stamps, 1997; Nelson, 1997; Pearlman & Barney, 2000; Rothstein, 1999; Schmitt & Chan, 1998; Snell, 1994).

Individuals' cognitive skill sets and knowledge bases will be key ingredients determining their capacity to contribute to project-based work. Further, a dynamic work environment implies a heightened degree of complexity as workers grapple with changing responsibilities, increased autonomy, increased adaptivity, and ambiguous expectations. Not only will individuals be dependent on their current capacity to strategize, reason, and problem-solve, but they will also be required to continuously acquire new skills and knowledge. Transitions between projects, products, and teams will test individuals with regard to their breadth as well as their depth of knowledge and skill. Individuals must be versatile, demonstrating an ability to do different things and apply different capabilities depending on the needs of a particular situation. Identifying the skill base of employees as a virtual organization's "most valuable asset" points to the importance of selecting individuals based on cognitive ability and job knowledge.

Research investigating cognitive ability and job knowledge supports this view. Higher levels of cognitive ability correspond to possessing a higher degree of job knowledge. Higher levels of job knowledge in turn contribute to higher levels of performance (Hunter, 1986; Schmidt & Hunter, 1998). For complex jobs involving technical, managerial, or professional skills, these relationships are stronger. If one conceptualizes complexity in terms of managing unexpected changes in task requirements, cognitive ability is again meaningfully related to performance such that higher levels of cognitive ability correspond to an increased capacity to manage information processing demands (LePine, Colquitt, & Erez, 2000). Not surprisingly, cognitive ability has also been linked to training proficiency (Ree & Earles, 1991; Schmidt & Hunter, 1998) suggesting that persons with high levels of cognitive ability are not only likely to possess more expertise, but are also likely to be more adept at acquiring new knowledge and skill. Further, research investigating teams suggests that cognitive ability is important in determining team decision-making accuracy and independent contributions to team performance (Barrick, Stewart, Neubert, & Mount, 1998; LePine, Hollenbeck, Ilgen, & Hedlund, 1997).

Communication skills. Communication competency has been recognized as critical for workplace team members (Flynn, McCombs, & Elloy, 1990; Krapels & Davis, 2000; Mankin, Cohen, & Bikson, 1996; Mohrman, 1999; Rothstein, 1999; Spendolini, 1993), particularly when members are self-managing (Kulisch & Banner, 1993). Likewise, communication skills have been identified as important for individuals engaged in the management of joint venture operations between organizations (Bailey & Shenkar, 1993), and for those involved in telecommuting work arrangements (Wright & Oldford, 1993). The need for communication competency is enhanced in any organization that requires greater interdependence between traditionally separate departments or processes (Dean & Snell, 1991) or effective collaboration across individuals (Cohen & Mankin, 1999). Thus, we contend that communication competence will also be important for work in a virtual organization. Cascio (1999) profiled employees most likely to be successful in virtual work arrangements as effective oral and written communicators, and Pearlman and Barney

(2000) considered communication skills to be an important worker attribute for those individuals functioning in a changing work environment. As Lumsden and Lumsden (1997, p. 105) noted, "abilities to express and interpret messages probably need to be even stronger when the communication is nonsynchronous, involves participants at multiple sites, and/or is limited to voice or electronic messages." Consequently, the need for accurate and effective oral and written communication skills will be greater in virtual organization contexts.

The specific communication skills required in a virtual workplace have not yet been clearly defined. Margerison and McCann (1995) demonstrated that the communication skills most commonly used in a team environment are enquiring, diagnosing, summarizing, proposing, and directing. In a similar vein, Crandall and Wallace (1998) identified speaking, writing, listening, and asking questions as important team skills for virtual workplaces. In a virtual organization, particularly if team members are physically distant from one another, there may be fewer opportunities to seek clarification of messages and instructions. Consequently, accurate hearing and understanding of messages when initially presented will be important. Team members' communication skills will also need to be appropriate for an electronically-mediated environment. E-mail and voice mail skills will be of particular importance to virtual teams that rely on technologically advanced communication.

Interpersonal skills. Social sensitivity has been recognized as an important attribute for individuals functioning in a changing workplace (Pearlman & Barney, 2000). The virtual organization model is dependent on effective collaborations between individuals, teams, and organizations. Individuals must share, coordinate, and integrate information in a dynamic work environment. The ability to effectively use interpersonal communication to facilitate cooperation and collaboration is an important attribute for individuals working in teams (Perkins & Abramis, 1990; Waller, 1999); this ability makes teams better able to coordinate effort and achieve their goals (Van Scotter & Motowidlo, 1996). Not surprisingly then, collaboration skills and interpersonal capability have been identified as characteristics important for working in virtual organizations and developing team synergy (Cohen & Mankin, 1999; Crandall & Wallace, 1998; Klimoski & Jones, 1995).

Lumsden and Lumsden (1997) contend that the ability to cooperate and collaborate in a team environment is comprised of three components: self-monitoring, coorientational accuracy, and the ability to create person-centered messages. Individuals who are effective self-monitors are concerned about the appropriateness of their social behavior, attentive to self-comparison information, and choose to portray themselves differently across contexts if they believe that is necessary. Individuals who display coorientational accuracy are able to correctly gauge another person's position or feelings, a trait similar to empathy (Hogan, 1968). Team members who rely on person-centered messages recognize the contribution of each individual and show sensitivity toward the feelings of others.

The underlying key to effectiveness in interpersonal exchanges is involvement, the ability to be fully cognizant of the messages and cues present in an exchange. More involved communication partners tend to recall more information from the exchange and produce more assertive statements and appropriate, logical arguments (Villaume & Cegala, 1988; Villaume, Jackson, & Schouten, 1989). Another important component of interpersonal interaction is communication flexibility, the ability to adapt interpersonal behavior to work effectively with new people (Aronoff, Stollak, & Woike, 1994; Paulhus & Martin, 1988). Individuals with effective interpersonal skills will choose among various communicative behaviors that accomplish the goals of the communication encounter, while maintaining the perspective of the interactant (Wiemann, 1977). Individuals possessing high level interpersonal skills are also responsive in their ability to formulate appropriate messages to achieve goals, and to know when to present messages for maximum impact (Celsi & Olson, 1988). Workers who are effective in a virtual environment will likely possess a strong repertoire of interpersonal styles and skills that they can effectively engage as situations dictate.

Conscientiousness. Behling (1998) noted that conscientiousness should serve as an indicator of future performance when a job is characterized by problem solving, autonomy, continuous learning, and organizational change. Others have extended these thoughts to virtual work and independent team arrangements wherein there is a need for workers who possess a substantial amount of self-management and personal initiative, and who are internally motivated, self-starters with a high need for achievement (Cascio, 1999, 2000; Crandall & Wallace, 1998; Kinlaw, 1991; Klimoski & Jones, 1995; Rosen et al., 2000; Sparrow & Daniels, 1999). Placing control and authority in the hands of employees requires that individuals monitor their own behavior. The autonomous work environment of a virtual organization will place employees in a less-structured work context with little supervision. Individuals will be responsible for monitoring their own time management, maintaining their task focus and pace, and evaluating their own progress. Conscientious individuals are described as responsible, dependable, persistent, achievement-oriented, and cautious. Individuals with greater levels of conscientiousness tend to be more diligent in pursuing their goals and completing responsibilities through either a need for accomplishment or a sense of duty or obligation.

Individuals with higher levels of conscientiousness should theoretically function more effectively within a virtual organization than less conscientious individuals. Research demonstrating the important role of conscientiousness when predicting performance in autonomous work environments lends credence to this notion (Barrick & Mount, 1993). Further, research has found that higher levels of conscientiousness in team members enhances team performance (Barrick et al., 1998; LePine et al., 1997). Additional evidence from the training literature suggests that conscientiousness is an important predictor of training proficiency because more conscientious individuals are more likely to successfully complete training programs (Barrick & Mount, 1991; Hough, 1992; Mount & Barrick, 1995; Salgado, 1997). This result is particularly relevant to virtual organizations wherein employees engage in continuous learning and reskilling in order to meet the demands of a changing work environment. However, wholesale application of the proposition that conscientiousness is an important characteristic must be tempered by recent research suggesting that a higher degree of dependability, a component of conscientiousness that reflects a need for order and deliberation, may actually inhibit performance when it involves managing unanticipated task changes (LePine et al., 2000). Such a context is likely to characterize virtual organizations.

Extraversion. Bush and Frohman (1991) noted the importance of identifying "natural networkers," those extraverted and social individuals adept at communicating with others, when selecting individuals for organizations characterized by a high degree of task interdependence and uncertainty. Pearlman and Barney (2000) identified extroversion as an important attribute for workers functioning in a team environment that requires collaboration with heterogeneous individuals. As Hogan, Murphy, and Hogan (1994) argued, extraverted individuals tend to communicate more with team members and are better able to build alliances with people who control necessary resources outside the team. Functioning in a virtual organization is dependent on information exchange. Be it through electronic channels or face-to-face communication, individuals who demonstrate a proclivity to obtain and share information will enjoy an advantage. Conducting work will be dependent on building relationships, often with individuals one has never met (Byrne et al., 1993). Further, functioning in an autonomous work environment places the onus on individuals to step forward and engage themselves as part of a team. People who are extraverted tend to be outgoing, assertive, sociable, and active. It follows then that the extent to which individuals are extraverted may contribute to their ability to perform successfully in a virtual organization.

Research conducted by Barrick and Mount (1991, 1993) supports this argument on two fronts. First, when evaluating the extent to which various personality traits predicted performance in training programs, extraversion emerged as a trait related to training proficiency. Individuals who were more sociable with a higher general energy level were more successful in completing various types of training programs requiring participant interaction. Second, in an attempt to better understand when extraversion might be an important variable for determining performance, researchers found that extraverted individuals holding high-autonomy jobs performed better than those individuals characterized as less extraverted who also held high-autonomy jobs. Barry and Stewart (1997) and Barrick et al. (1998) linked extraversion to teams finding that teamwork was often facilitated by the presence of more extraverted individuals. Collectively, these research results are particularly important in supporting extraversion as an important characteristic for work in virtual organizations given the autonomous, team-based work environment and the need for continuous learning.

Agreeableness. Agreeable individuals are described as courteous, cooperative, considerate, warm, and trusting. The extent to which individuals are considered more agreeable predicts their capacity for increased interpersonal facilitation (Hurtz & Donovan, 2000), presumably through the presence of a more positive attitude toward cooperation and collaboration. Those individuals rated as more agreeable engage in information exchanges that others perceive as more satisfying. Given that interpersonal interaction is a critical component of work in virtual organizations, agreeableness should be a valid indicator of success in this environment.

Similarly, research suggests that higher levels of individual team member agreeableness facilitate teamwork (Barrick et al., 1998; Mount, Barrick, & Stewart, 1998) and many scholars have called for the use of agreeableness when staffing work teams (e.g., Driskell, Hogan, & Salas, 1987; Neuman & Wright, 1999). Individuals who are high in agreeableness tend to prefer negotiating over asserting power which facilitates team-based problem solving (Graziano, Jenson-Campbell, & Hair, 1996). Effective team members ask others for ideas, offer help, accept suggestions from others, and consider the needs, motivations, and skills of other team members (Wellins, Byham, & Wilson, 1991), behaviors consistent with agreeableness. Moreover, Caligiuri (2000) concluded that more agreeable expatriates were more successful in completing their overseas work team assignments, suggesting that agreeableness facilitates cross-cultural team interaction.

However, research also suggests that agreeableness can exert a negative effect when performance requires working in teams. Agreeable individuals tend to avoid conflict and defer to others when conflict arises (Mount et al., 1998). So, though agreeableness may facilitate positive interpersonal exchanges between team members, it may be problematic when intra-team conflict occurs. Additionally, when virtual organizations require teamwork within an autonomous work environment, the positive effect of agreeableness must be balanced with research suggesting that individuals rated higher on agreeableness tend to display poorer performance in high-autonomy jobs (Barrick & Mount, 1993). Individuals who are more agreeable tend to be more rule compliant and cooperative, a tendency that may lead them to have difficulties in an environment with little structure. Consequently, though agreeableness may be related to success in some aspects of life in virtual organizations, it is unclear whether that effect will be universally positive.

Openness to experience. Catino (1992) and Pettersen (1991) speculated that openness to experience, particularly in times of change, is an important characteristic for self-managed team members. Snell (1994) indicated a need to identify employees for virtual organizations who will welcome changing responsibilities and opportunities for growth. The emphasis on project teams, geographically dispersed across varying organizational and ethnic cultures, implies a need for individuals capable of and interested in collaborating with others who may possess different ways of working (Cascio, 2000; Rothstein, 1999). As Byrne et al. (1993) stated, virtual organization employees need to be "open to dealing with outsiders." Crandall and Wallace (1998) emphasized the identification of "virtual pioneers," individuals excited by the prospect of new technology changing the way they work. Individuals who are higher in openness to experience tend to be imaginative, curious, broad-minded, and culturally-sensitive. They tend to embrace change in that it reflects an opportunity to investigate new ways of doing things and the potential for exposure to new experiences. Thus, more open individuals should perform better in a virtual organization than individuals who are more narrow, unimaginative, or hesitant to explore alternative ways of thinking.

Preliminary research suggests that openness to experience may be an effective characteristic for consideration when selecting individuals for virtual organizations. LePine et al. (2000) found support for openness as an important predictor of an individual's capacity for managing decision-making in the context of unanticipated change. Openness is positively associated with flexibility in work identity (Whitbourne, 1986). Individuals high in openness are more likely to engage in the self-monitoring that is necessary for adapting to changing contexts (Busato, Prins, Elshout, & Hamaker, 1999). Barrick and Mount (1991) and Salgado (1997) reported that openness is positively related to training proficiency. Speculation about the relationship between openness and training proficiency suggests that openness captures an individual's motivation or positive attitude toward learning. The curiosity present in individuals who display greater degrees of openness generates an interest in the acquisition of new knowledge and skills. Jarvenpaa and Ives (1994), Nelson (1997), and Pearlman and Barney (2000) noted the importance of selecting individuals into changing, global organizations who demonstrate a motivation to learn. Given the connection between openness to experience and ones attitude toward training, it would seem that openness is an important characteristic for determining success in virtual organizations.

Self-efficacy. Self-efficacy involves an individual's belief that he or she has the capability to organize and execute a successful course of action (Bandura, 1997). Enhanced self-efficacy results in initiation and persistence (Bandura, 1991). We contend that self-efficacy will be an important characteristic for work in virtual environments for a number of reasons. First, self-efficacy prompts individuals to persevere in the face of obstacles or challenges (Lent, Brown, & Larkin, 1987). Individuals with high self-efficacy tend to use problem-focused coping strategies when faced with adversity, while those with low self-efficacy use emotion-focused strategies (Kinicki & Latack, 1990). Problem-focused responses facilitate more creative and adaptive responses to difficulties, a result important in a work environment that requires ongoing problem solving.

Second, a strong sense of self-efficacy can help employees cope with the ambiguity and stress that arises from facing newly established work roles that must be negotiated on an ongoing basis. Jex and Bliese (1999) found that individuals with high self-efficacy showed less psychological stress and strain when faced with work overload. Gregson and Wendell (1994) found that employees with high job-specific self-esteem coped better with role ambiguity and role conflict, while other studies confirmed the importance of self-efficacy as a predictor of successful coping in uncertain and changing work environments (e.g., Callan, Terry, & Schweitzer, 1994; Hill, Smith, & Mann, 1987; Jones, 1986). In fact, self-efficacy may actually influence preferences for challenging work environments, such that workers with high self-efficacy are more comfortable in jobs requiring extensive personal judgment and independent functioning (Hackman & Oldham, 1975; Matsui & Onglatco, 1992).

Self-efficacy may also enhance employees' performance in work teams. Thoms, Moore, and Scott (1996) presented results indicating that team member self-efficacy enhanced self-managed work group outcomes. Individual team member self-efficacy contributed positively to individual performance, which then contributed to a team-level rise in self-efficacy as the task proceeded. Self-efficacy may further enhance group performance by aiding the development of social ties within the work group. Numerous studies confirm that individuals high in self-efficacy are more proactive when joining a new group, which contributes to their success (e.g., Ashford, 1986; Dix & Savickas, 1995; Hall & Mirvis, 1995).

Finally, self-efficacy may support continuous learning in that it has shown a consistently strong relationship with successful training outcomes (Gist, Stevens, & Bavetta, 1991; Gist, Schwoerer, & Rosen, 1989; Quinones, 1995). Colquitt, LePine, and Noe (2000) found support for the premise that self-efficacy was positively related to both motivation to learn and successful mastery of training content. Indeed, individuals high in self-efficacy may be more comfortable with the expectation of continued instruction present in virtual organizations. Saks (1994) found that individuals with high self-efficacy showed a marked preference for informal and self-taught training programs versus more traditional learning formats.

Tolerance for ambiguity. Tolerance for ambiguity reflects the tendency to perceive ambiguous situations as desirable (Budner, 1962). It is a compound characteristic consisting of an individual's sense of resilience, emotional stability, and stamina. We, and others, argue that individuals functioning in a virtual organization should demonstrate a tolerance for ambiguity because the work environment is ever-changing and requires continuous transformation (Klimoski & Jones, 1995; Mohrman, 1999; Pearlman & Barney, 2000; Schmitt & Chan, 1998).

Classically, tolerance for ambiguity helps people tolerate and cope with new experiences (Rydell, 1966), and research confirms that tolerance for ambiguity is a predictor of successful coping during periods of organizational change (Ashford, 1988; Hamilton, 1988; Rush, Schoel, & Barnard, 1995). Keenan and McBain (1979) uncovered a positive relationship between tolerance for ambiguity and psychological strain such that individuals who were more comfortable in ambiguous situations were less likely to feel the pressure of a fast-changing work environment. Similarly, Callaway, Marriott, and Esser (1985) demonstrated that staffing teams with individuals possessing an ability to handle stress and ambiguity enhanced the group decision-making process.

Beyond the basic stress inherent in periods of change, tolerance for ambiguity should be important because workers in virtual organizations are likely to encounter role ambiguity. Role ambiguity is particularly common when work events are unusual, unprecedented, or do not fit established patterns. In these situations, workers may lack information about the scope and limits of responsibility, the expectations associated with a role, the behaviors required to fulfill job responsibilities, or the standards for performance appraisal (Kahn, Wolfe, Quinn, & Snoeck, 1964). Role ambiguity will also increase when there is misinformation or no information regarding co-workers expectations and demands (Rhoads, Singh, & Goodell, 1994). Flynn, McCombs, and Elloy (1990) found that the ability to cope with role ambiguity was vital to the performance of a self-managed work team. Since the fast-changing and amorphous nature of virtual organizations dictates rapidly changing and/or multiple roles for every employee, employees must be able to cope successfully with unclear guidelines and constantly evolving expectations from co-workers and managers.

Learning vs. performance orientation. Individuals differ in their tendency to approach tasks from a *learning* or *performance* goal-oriented perspective (Dweck, 1986). Those with a performance goal orientation value successfully completing a task and receiving praise/rewards, while those with a learning goal orientation desire challenging situations where they can learn new skills and enhance existing ones (Button, Mathieu, & Zajac, 1996). People with a learning orientation tend to view personal characteristics as more malleable, believing that skills and abilities can be developed through effort (Dweck, 1989). Consequently, a learning orientation is known to be positively associated with meeting skill improvement goals, and negatively associated with the tendency to avoid learning opportunities (Brett & VandeWalle, 1999). Rather than viewing their poor performance on a novel task as a failure, individuals with a learning orientation interpret negative feedback as an indication of how to change their approach the next time they encounter a task (Dweck & Leggett, 1988). Training researchers have noted that the relationship between learning orientation and learning among adults is robust, with both cognitive and behavioral performance measures enhanced when trainees embrace learning goals (Baldwin, Magjuka, & Loher, 1991; Noe & Schmitt, 1986; Quinones, 1995). Learning orientation has also been linked to conscientiousness in training settings (Colquitt & Simmering, 1998), a finding that implies that learning goal-oriented individuals take more care in training programs to insure that their participation is effective.

Though no research has explicitly linked learning orientation to success in a virtual environment, there is reason to believe that this trait should enhance performance in this context. Pitman (1994) claimed that a learning orientation is necessary in technology-driven companies to insure that employees are motivated to keep their skill sets current and learn about new applications and procedures on an ongoing basis. Neuman and Wright (1999) noted that a learning orientation is important to the success of a team with widely distributed expertise, since these situations often require "trial and error" learning. Similarly, individuals with a learning orientation should respond more positively to a work environment that challenges them to perform at a consistently high level. In fact, Dweck and Leggett (1988) hypothesized that people with a learning orientation actually need challenging goals and the opportunity to experiment with new and innovative things on the job in order to be satisfied with their employment experience. Thus, individuals with a learning orientation ought to be well suited for the dynamic nature of a virtual organization, and may in fact relish the opportunity to work with a variety of different groups on a number of challenging tasks.

Risk-tolerance. Individual reactions to risk reflect a tolerance or preference for risk that is a relatively stable individual trait. Research reveals that risk-tolerance is positively related to openness to experience and tolerance for ambiguity (Judge, Thoresen, Pucik, & Welbourne, 1999). Individuals with a high tolerance for risk assume a "challenge" orientation, and tend to focus on those situational components that have the potential to alter the status quo (Lopes, 1994). This "challenge" orientation is likely to be a component of individual success in virtual organizations. Most descriptions of work in a virtual environment note an entrepreneurialistic culture characterized by a need to take risks (Cascio, 1999; Snell, 1994). Stein (2000) concluded that a willingness to take risks is key to success online. Additionally, for workers faced with the need for continuous learning in a changing environment, a comfort with risk taking is often identified as an important characteristic (Pearlman & Barney, 2000; Schmitt & Chan, 1998). In a virtual world of work, employees must act quickly to capitalize on opportunities, often in unfamiliar situations or with relatively unknown team members. Those who are more risk tolerant are more likely to be comfortable in this environment.

Intercultural style. In a virtual organization, advanced technology paves the way for the formation of culturally heterogeneous teams. Whether communicating virtually or face-to-face, individuals will likely find themselves collaborating with others around the globe. Cultural differences in assumed formality, power structure, conflict management, and communication style have the potential to create negative outcomes as individuals function interdependently with others who may have different ways of working (Mohrman, 1999). This raises a need for individuals who demonstrate a sensitivity to cultural diversity evidenced by an understanding of others' cultural differences (Earley & Mosakowski, 2000; Rosen et al., 2000). Fulkerson and Tucker (1999) emphasized the need to distinguish individuals based on their personal intercultural effectiveness, their ability to adapt their own cultural style to the styles and behaviors of people from other cultures. An individual's intercultural effectiveness represents a compound characteristic that captures openness, flexibility, social competence, initiative, risk taking, and perceived internal locus of control. Fulkerson and Tucker argued that individuals possessing these qualities and skills should be able to cultivate intercultural relationships more effectively. Cohen and Mankin (1999) echoed this sentiment. They noted the importance of identifying individuals who can serve as communication conduits between collaborators and who grant the legitimacy of other cultural perspectives. They suggest that individuals with these qualities will be better able to facilitate collaboration among culturally diverse individuals.

Retrospective

This list of characteristics identified as important for individuals working in virtual organizations is meant as a starting point for human resource (HR) professionals. Since it was constructed from theoretical speculation and not from appropriate work analysis, the list should not serve as a conclusive job specification for applicants. Realistically, the characteristics listed are too numerous for complete inclusion in a selection system. Constraints such as available resources and the potential (or lack thereof) for obtaining incremental validity, will trim the list considerably as practitioners weigh the tradeoffs implicit in any selection system design. Therefore, we do not recommend that organizations attempt to measure all the characteristics outlined above. Rather, selection systems in virtual organizations should measure a set of characteristics that are broad enough to capture multiple aspects of performance, while efficiently measuring those characteristics identified as most predictive.

RECRUITMENT

Though the number of virtual organizations is growing, relatively few workers currently have experience in this environment. Consequently, one of the most important elements of recruiting individuals to work in virtual organizations will be the creation of an effective recruitment message. Applicants' information about an employment opportunity typically comes from job advertisements and recruitment brochures (Rynes, 1991) and/or from employees currently working in the organization (Breaugh, 1992). This information is the basis for applicants' beliefs about a job, and these beliefs are primary determinants of their attraction to a particular position and their intention to pursue that position (Schwab, Rynes, & Aldag, 1987; Stevens, 1997; Turban, Campion, & Eyring, 1995).

During the recruiting process, more information is better. Research confirms that applicants' perceive organizations as more or less attractive simply based on the amount of information they receive during the recruitment process (Rynes & Miller, 1983). When providing this information, it will be important to present the nature of work in a virtual organization and the values, norms, and beliefs that underlie work in a virtual organization. Existing research on realistic job previews, the provision of explicit and detailed explanations of job duties before commencing employment (Wanous, 1992), indicates that the particular information applicants receive about a potential job opportunity plays an important role in determining whether they will apply for an open position (Bretz & Judge, 1998). This position information sparks self-selection into or out of the applicant pool based on the "fit" they perceive between their characteristics and the job environment (Breaugh, 1992; Judge & Cable, 1997), the congruence they see between their own goals and values and those of the organization (Judge & Bretz, 1992; Schneider, 1987), and the extent of positive information they receive about the position during the recruitment process (Bretz

& Judge, 1998; Rynes, Bretz, & Gerhart, 1991). Because employment represents an important component of peoples' lives, and because joining an organization is usually perceived as an expression of personal values (Popovich & Wanous, 1982), job seekers' personalities and values have a strong influence on their choice of which positions to pursue (Judge & Cable, 1997). Recruiters have a responsibility to communicate to applicants the culture of the virtual organization to facilitate decision-making.

This natural self-selection benefits virtual organizations by producing a pool of applicants truly interested in working in this type of environment. For example, Schmitt and Chan (1998) and Klimoski and Jones (1995) discussed the importance of selecting individuals into team environments who demonstrate a motivation to work in teams and a preference for teamwork. Schmitt and Chan (1998) also noted that individuals selected for work in a changing environment should be motivated to adapt and change. Individuals who express an interest in working in a virtual organization are signaling their motivation to be part of a team-based, dynamic environment and their interest in working with advanced technology. It is an implicit and effective selection process. Consequently, recruiters in virtual organizations should present a complete, accurate, and positive composite of what working in a virtual organization will be like.

To attract individuals to virtual organizations, it will also be important to define and explain the nature of the training and personal development opportunities available within the organization (Crandall & Wallace, 1998). Modern career paths in virtual organizations are admittedly more difficult to define than traditional vertical trajectories, so it will be important to discern and then communicate how employees advance through the organization. Multiple team assignments will allow employees to learn about the organization as a whole, while simultaneously developing new and valuable skills. Consequently, presenting the virtual organization experience as a valuable personal development tool may be one way to recruit employees.

Recruiters in a virtual organization may choose to rely on traditional recruiting methods such as print media advertising, networking, and recruitment agencies to generate an applicant pool. However, technologically advanced methods may prove to be particularly effective for recruiting in this context. Since much of the work in virtual organizations is electronically facilitated, the first logical way to pursue new employees is through the Internet. More than 30% of all recruitment advertising budgets were spent on the Internet in 2000 (Mullich, 2000), and employers are increasingly finding success attracting the attention of computer-savvy workers through this medium (Sheridan, 1999). Firms can choose to list their openings on one of the more than 30,000 Internet job boards (Berta, 2000; Rothstein, 1999; Snell, 1994). On most sites, job seekers can post their resumes and browse through listings for free, applying for jobs that interest them. Intellimatch is one of the more sophisticated Internet job services available (Rothstein, 1999). Applicants provide an extensive detail of their skill set, while employers describe their positions in the same skill terms. This produces a skill inventory for use in matching applicants with jobs. Employers using Internet services must pay to list an opening and establish a direct link to their web site. However, fees for Internet job sites tend to be lower than for other employment sources, such as advertising and recruitment agencies (Wagner, 2000). Further, many sites will screen resumes using keyword searches and notify employers when a candidate meets their specifications.

Applicants can also be solicited online through advertising directed at getting individuals to peruse job postings on a company's own web site. Even traditional print "want ads" can direct applicants to a web site for more information. Virtual organizations wishing to use their own corporate web site as a recruiting tool should note these recommended best practices (Williams, 2000):

- Provide information regarding corporate culture to allow applicants to assess their own fit with the company.
- Provide detailed, yet concise descriptions of career opportunities that identify upcoming projects and specify the training and development opportunities available.
- Create an attractive site that is easy to navigate.

If an organization already has employees in virtual work relationships, these individuals can be an important source of additional workers. Applicants view information about a position from informal sources (such as friends currently working for an organization) as more reliable than "official" information from a recruiter (Breaugh, 1992). Additionally, individuals hired as a result of employee referrals tend to perform better and stay with the organization longer than do those recruited through other means (Rynes, 1991; Wanous & Colella, 1989), possibly because these individuals receive a more complete realistic job preview through their personal relationship prior to beginning employment. Virtual organizations may choose to aid the employee referral process by offering recruitment bonuses for successful referral hires.

As a final note, the recruitment process in virtual organizations needs to be driven by skills. Recruiters will need to focus on what applicants have to offer versus their current position title. Given the relatively unique work environment, some virtual organizations may find targeting new college graduates to be an effective strategy. Individuals just entering the workforce, who have not yet been exposed to more traditional ways of working, may be more open and responsive to virtual work with an autonomous bent (Crandall & Wallace, 1998). This is not to suggest that individuals currently in the workforce would not emerge as exceptional employees in a virtual organization. Rather, this option is posed more as a means of emphasizing the need to target persons interested in and intrigued by the nature of virtual organizations.

SELECTION

As evidenced by the self-selection process outlined above, the distinction between recruitment and selection is a nebulous one. It is often not clear where recruiting ends and selection begins, making any distinction drawn between the two concepts somewhat artificial. Nevertheless, beyond the tools used during recruiting to generate an applicant pool, there are many other formal selection tools available that will distinguish individuals on the basis of important characteristics. Work samples, structured interviews, personality inventories, situational judgment tests, and cognitive ability tests can all be used to measure applicants on the characteristics discussed above. However, selection systems for virtual organizations should embody the philosophy of these organizations and be responsive to the realities faced by these types of organizations. More specifically, a dynamic, evolving work environment characterized by project transition and technological advancements requires selection tools that will facilitate these transitions and incorporate advanced technology. In an ever-changing environment, the speed of the selection process becomes important. As Byrne (2000) noted, everything in an e-commerce environment must be faster in order to remain competitive. Selection systems that process applicants in 2–3 months will consistently lag behind organizational needs. A cycle of 2–3 days from applicant identification to employment offer will be more suitable. Therefore, selection tools for virtual organizations must be efficient to administer and should make quick decision making possible. In addition, the selection tools used should reflect the interdependence between virtual organizations and technology. Technologically-advanced selection tools engender the practice of virtual organizations allowing, for instance, an applicant in one location to communicate and interact with a hiring manager in another location. These tools also make a paperless selection process possible where electronic documents and information can be quickly disseminated nationwide or worldwide. Such an approach follows nicely from a technologically-advanced approach to recruiting and emphasizes the role of technology in virtual organizations.

Tools

Electronic resumes. Electronic versions of applicant resumes should be available for immediate, electronic dissemination within the organization. Applicants should be able to submit their resume using either e-mail or the organization's website. For experienced candidates, resumes represent an efficient way to access information about an applicant's cognitive ability, job knowledge, and capacity to perform in a virtual organization environment. Resumes that outline position accomplishments with quality indicators represent an individual's work portfolio. Since past performance is one of the best predictors of future performance, resume information that outlines past performance will serve as a proxy measure of job knowledge and an applicant's ability to perform similar responsibilities in a new organization. For virtual organizations, hiring managers should examine resumes with an eye toward performance in work environments characterized by at least some of the dimensions of virtual organizations. Evidence of successful performance in team situations or the successful management of dynamic product lines will hint at whether an applicant will be able to perform as successfully in virtual organizations. Using resumes in this way mimics a sort of rudimentary behavioral consistency approach (Schmidt & Hunter, 1998). Resumes will also provide job experience information. Job experience is predictive of future performance for up to five years, conceivably because individuals are acquiring relevant job knowledge during that time (Schmidt & Hunter, 1998). Assuming job experience does not lead to routinization, individuals with more work experience are likely to be more familiar with the knowledge and underlying principles of work tasks necessary to respond proactively to change (Schmitt & Chan, 1998). Resumes will also provide education and grade point average (GPA) information, a measure of cognitive ability helpful when selecting from inexperienced applicants just entering the workforce. GPA is a compound index that captures cognitive ability and motivation (Roth & Bobko, 2000). Individuals with greater levels of cognitive ability tend to have higher GPAs. It is for this reason that many large organizations, such as Microsoft, request GPA information from applicants (Roth & Bobko, 2000).

Managing the potentially hundreds of resumes that may be submitted in response to a job posting is a common concern. With electronic submission, applicants can send their resumes to thousands of organizations at the touch of a button; more than 2.5 million resumes were already online in January 2001 (Gilster, 2001). This resume overload must be dealt with effectively in virtual organizations, as the process of sorting through hundreds of resumes has the potential to mire the selection process in electronic paperwork. Automated person-job matching systems may be particularly useful for culling those applicant resumes that are likely to yield qualified applicants. These systems function in conjunction with an organization's information system to link applicant competencies with position requirements (Pearlman & Barney, 2000). As an example, the Resumix system accomplishes this matching process using expert-system extraction technology (Rothstein, 1999), and BrassRing Systems offers a service that will manage a corporation's recruiting website with the purpose of creating one central applicant database and facilitating the development and publication of job descriptions and specifications (Brooks, 2001). Both systems group applicants on the basis of both broad and specific categories and summarize applicant personal information, education, and work history. However, as both Pearlman and Barney (2000) and Rothstein (1999) noted, with any information management system, the tool is only as good as the information it manages. Thus, virtual organizations interested in using this technology need to take special care to rely on matching algorithms that draw on position and skill information that is accurate, valid, and complete.

Online assessment. Many of the characteristics considering important for working in virtual organizations can be assessed using surveys, questionnaires, or tests. Cognitive ability, job knowledge, extraversion, and intercultural style, for example, can all be measured in this way. Valid and reliable questionnaires or tests are readily available from published research and organizations specializing in test construction, administration, and interpretation such as the Institute for Personality and Ability Testing, Inc., Consulting Psychologist Press, and Personnel Decisions International, to name just a few. For virtual organizations, testing instruments previously administered in person using paper and pencil should be transferred to a web-viewable, interactive format that will allow applicants to access a website from any location, and complete and submit their responses to a particular measure. Applicant responses should be scored automatically and applicant profiles generated immediately making the testing process much faster. In fact, online testing allows a company to offer preliminary online assessments and provide candidates with immediate feedback concerning their potential "fit" with the organization (Piturro, 2000). Not only does this minimize the time and cost of screening applicants, but it could potentially have a positive effect on candidates who are asked to continue with additional testing. In one of the few studies directly examining applicants' reactions to online assessment, Dineen, Ash, and Noe (2001) found that when recruits received feedback from an initial screening tool indicating that they were a potential "fit" with the organization, their interest in pursuing employment with that organization increased. With increasing web sophistication, this approach to screening applicants has begun to emerge in the general workplace. For example, both Coopers & Lybrand and Saville & Holdsworth use automated, online selection test batteries designed to efficiently gather multiple types of information from remote applicants (Rothstein, 1999). The State of California uses an Internet-based application and civil service testing process for its largest entry-level professional classification, a program that has been well-received by both applicants and hiring managers (Coffee, Pearce, & Nishimura, 1999).

Online simulations represent another means of assessing applicants using web technology. With multimedia, interactive simulations can be constructed that place applicants in scenarios reflecting potential work situations. The use of graphics, video, animation, and sound can create a rich, face valid, virtual environment. The online simulation can be constructed as a work sample test wherein individuals demonstrate their job knowledge completing relevant job tasks, a test that is traditionally highly predictive of future performance (Schmidt & Hunter, 1998). Alternatively, an online simulation can be constructed to serve as a situational judgment test designed to assess an applicant's interpersonal or team support skills, for example. Both work samples and situational judgment tests have been identified as important selection tools applicable in a virtual organization type context. Cascio (1999) espoused work samples as an appropriate selection tool for virtual work arrangements in that this type of assessment should contribute to an applicant's realistic job preview. Schmitt and Chan (1998) noted the value of situational judgment tests when measuring team-relevant characteristics. The key for virtual organizations will be to turn what were previously simulations conducted on paper into automated, interactive computer-based simulations accessible via the web.

Online interviewing. Most organizations rely on interviews when evaluating applicants. In the case of structured interviews based on work analysis, this reliance makes sense given the strong evidence of validity (Schmidt & Hunter, 1998). Interviews can be designed to measure almost any applicant characteristic. The distinction between a structured interview that measures cognitive ability and a structure interview that measures interpersonal skills is merely a function of the specific questions asked. For virtual organizations, structured interviews should continue to serve as a useful assessment tool. However, it may not always be possible for applicants and hiring managers to meet face-to-face. Therefore, virtual organizations will need to experiment with online interviewing. Video conferencing technology and web cams allow for streaming video and audio feeds between geographically remote locations. This technology can be used to conduct applicant interviews online. Executive recruiters in Texas and California indicated that the use of videoconferencing interviews has increased dramatically, particularly for executive positions, and that they are experimenting with other forms of interactive technology to determine the best interview formats (Piturro, 2000). The implications of this approach are not yet well defined. For instance, will it be possible for hiring managers to effectively assess nonverbal cues, a source of information demonstrated as important for predicting performance (Motowidlo & Burnett, 1995)? However, since work in virtual organizations may often require communication using this technology, the ability of an applicant to communicate without relying on nonverbal cues may serve as an excellent indicator of future performance.

Assessment centers. A virtual organization that conducts online testing and interviewing is one step away from the concept of online assessment centers. Assessment centers have traditionally been expensive, time-consuming selection tools that, while predictive of performance (Schmidt & Hunter, 1998), are often questioned as a wise use of limited resources. For virtual organizations, these problems are compounded because it is often not feasible and cost-prohibitive to transport applicants to one central location. However, since most assessment centers involve the completion of various ability and personality tests and a structured interview, in addition to the traditional exercises such as a leaderless group discussion or in-basket, virtual organizations that incorporate online selection tools will already be partially adapted toward putting applicants through an online assessment center. The intriguing option for virtual organizations is the opportunity to move the traditional exercises to a web environment. The in-basket exercise might become an e-mail in-box exercise requiring mailbox management, communication via e-mail, or filter creation. The leaderless group discussion may occur in a video conference room with other applicants from other locations. Conceivably, data collected during these exercises could be automatically recorded and artificial intelligence could administer a scoring template that would reduce the need for raters. In this case, technology creates an exciting potential to maintain the positive attributes of assessment centers while decreasing the negative attributes.

Retrospective

This discussion of selection tools purposely focuses on new selection technologies useful in virtual organizations. This does not, however, negate the importance of considering more traditional selection tools delivered either face-to-face or through a less advanced medium. Structured interviews conducted in-person or team interaction exercises meant to simulate likely work environments will have an important role in selection systems for virtual organizations as well. The technological focus taken here merely recognizes that in many cases, traditional assessment approaches may not be feasible, necessitating the use of new delivery techniques.

ADDITIONAL ISSUES

Dealing with the Skill Gap: Gaining Breadth and Depth

Work in a virtual organization will demand high-level skills. Individuals will need an advanced analytical and problem-solving capacity, excellent communication skills, social maturity and professionalism, and skillfulness in dealing with interpersonal relationships. However, recent reports suggest that many employers are facing significant skill deficiencies in applicant populations, most notably a lack of interpersonal and technical skills (Crandall & Wallace, 1998; Rothstein, 1999). As an additional challenge, virtual organizations require individuals with an extensive skill repertoire so that they may contribute to multiple projects. Such a requirement evokes a "breadth of skill versus depth of skill" tradeoff. The challenge is complicated by the fact that an estimated 20% of current technical knowledge becomes obsolete within 1-1/2 years (Pearlman & Barney, 2000). This reality means that virtual organizations may experience great difficulty recruiting fully-qualified applicants.

Strategies for dealing with this issue rely on the establishment of a strategic link between selection and training. These two functions need to work interdependently to resolve the skill gap issue and manage the "breadth versus depth" tradeoff. For example, a selection strategy that emphasizes identifying applicants with a strong capacity for learning versus specific knowledge acquired dovetails nicely with a strategic approach to training that offers development opportunities focused on more transient or specialized skills. A strategic link between selection and training will allow the selection system to focus on those skills that are most predictive of performance, leaving skills that are more peripheral to be acquired through training (Pearlman & Barney, 2000), thereby reducing the number of characteristics that must be assessed initially and broadening the applicant pool. Characteristics identified as hiring prerequisites, then, should be meaningfully related to performance and difficult for the training function to develop. In this way, virtual organizations can avoid screening out otherwise desirable candidates from an already-shrinking applicant pool.

Selection Tool Validation

Validation of selection tools will continue to be important to justify inferences drawn from the measures used. The typical validation process, however, may need to adapt for application in a virtual organization. For instance, special attention will need to be paid to the criterion. As Sparrow and Daniels (1999) noted, there is a tendency when validating measures to define performance more narrowly, focusing on task performance with perhaps the addition of contextual performance. Performance in virtual organizations, however, will likely be much broader, spanning multiple contexts. Criterion definitions will need to recognize the importance of multiple performance dimensions including adaptability (Pulakos, Arad, Donovan, & Plamondon, 2000), team contribution (Jones, Stevens, & Fischer, 2000), knowledge acquisition, knowledge management, professional growth, and reputation. In addition, performance will need to be defined in terms that are broad enough to remain applicable in a dynamic environment. A microcosmic task focus will surely be obsolete and esoteric after a short period of time. Thus, it will be important for HR professionals to use measures of performance that capture its multidimensional nature, rather than focusing only on project completion or task accomplishment.

With time of the essence, companies will also need to find ways to make the validation process more efficient. At a minimum, when conducting criterion-related validation studies, HR professionals in virtual organizations should rely on concurrent designs since these designs are much faster to execute and provide comparable validity estimates (Gatewood & Field, 1994). For those HR professionals contemplating the content validation of new, innovative selection tools, consideration must be given to the extent of mental judgments and intrinsic traits required. Work in virtual organizations will be much less a function of observable behaviors or actions and much more a product of analytical thought, problem-solving, social tact, and relationship fostering making it difficult, and perhaps inappropriate, to conduct traditional content validation. HR professionals should consider focusing on simply evaluating whether or not the proposed measures are meaningful (i.e., display psychological fidelity). For example, HR professionals could work in tandem with job incumbents in a round-table discussion format (or round-table video conference format) to generate answers to three key questions identified by Gatewood and Field (1994) as most important in establishing valid inferences: (1) Does successful performance on the selection measure require the same knowledge, skills, and abilities needed for successful job performance? (2) Is the mode used for assessing test performance the same as that required for job or task performance? (3) Are knowledge, skills, and abilities required on the job present in this predictor? HR professionals will then need to rely on criterion-related validation as a more conclusive follow-up.

Selection systems in virtual organizations should also be as universal as possible. Relying on broad characteristics and a core set of measures applicable across the majority of positions will allow the system to benefit from economies of scale. Since virtual organizations remove the majority of the organizational hierarchy, the potential for common dimensions of work across jobs is high. This organization of work will also allow HR professionals to explore the use of synthetic validation, an approach especially applicable when only small sample sizes are available (Gatewood & Field, 1994). By validating selection measures across work dimensions common to many jobs in virtual organizations, sample sizes will be increased providing for the computation of validity coefficients, and it will no longer be necessary to conduct extensive validation studies for each job. This validation approach, combined with a rational judgment process, may prove to be particularly effective in virtual organizations.

Placement in Virtual Teams

Selection challenges within virtual organizations will center on the need to place individuals on virtual teams. These placement decisions become particularly important because the majority of work is conducted by teams. Ineffective team placement has the potential to fully undermine virtual organization productivity and performance. Klimoski and Jones (1995) highlighted the importance of compatibility among team members, suggesting that similarity in values, attitudes, and preferences allows team members to work well together despite their differing skills, abilities, and experiences. In order to be successful, team placement decisions must take into consideration the characteristics of other team members and evaluate the extent to which team members complement each other (Schmitt & Chan, 1998).

Traditionally, the focus of team composition research has been on demographic similarity and dissimilarity among team members (e.g., Tsui, Egan, & O'Reilly, 1992). However, more recent work has revealed that team members can, over time, successfully surmount any differences caused by these "surface-level" attributes (Milliken & Martins, 1996). However, "deep-level" diversity, or heterogeneity in team members' values and preferences, cannot be similarly overcome through routinized interaction (Harrison, Price, & Bell, 1998). This work confirms that teams need to be composed of people who not only perform their tasks well, but work well together (Kichuk & Wiesner, 1997). Thus, compiling a successful team requires consideration of not only members' skills and abilities, but also their personalities and politics (Driskell et al., 1987; Klimoski & Jones, 1995). This process of matching of team member characteristics is admittedly complex. However, efforts to ensure that the characteristic profile of the team matches the demands of the job, and that the people within the team are compatible can lead to success. Eastman Kodak, for example, noted significant increases in team success rates in shifting their policy from selecting the best technical people for work teams to actively assessing personal compatibility of team members (Moad, 1994).

To maximize a team's performance potential, research suggests that there are some areas where team members should be similar and others where they should differ. First, team members should be similar in their level of conscientiousness, since heterogeneity on this trait has been found to decrease team performance over time (Kichuk & Wiesner, 1997). Similarly, team member homogeneity on the traits of emotional stability and agreeableness facilitates more effective social functioning (Driskell et al., 1987; Thoms et al., 1996), allows teams to be more cohesive (Barrick et al., 1998), and facilitates problem solving and conflict resolution (Neuman & Wright, 1999). On the other hand, maintaining differences in team members' levels of extraversion has the potential to enhance team performance. This heterogeneity allows members to take on complementary roles (Neuman et al., 1999), whereas team members with uniform levels of extraversion tend to experience more role conflict (Barry & Stewart, 1997).

Directions for Future Research and Innovation

The concept of staffing a virtual organization is clearly still in a discovery phase. In fact, we are still grappling with what it means for an organization to be "boundaryless." What is clear is that virtual organizations in concept epitomize an ideal that may not in fact represent the realities faced by organizations moving toward the virtual model. This creates a wonderful challenge for selection researchers as there will be a need to develop selection systems that are malleable and responsive enough to evolve. In the past, selection systems have been stagnant entities designed around clearly defined jobs. These systems were often thorough, extensive, time consuming, but yet effective. Selection systems for virtual organizations will need to be faster and more efficient, while being less extensive, just as thorough and just as effective. To meet this challenge, there are a number of issues that should direct future research.

While we, and others, can speculate about those characteristics likely to be important for individuals working in organizations that are dynamic, team-based, and autonomous, there is a need to move beyond theoretical arguments to empirical evidence. The characteristics identified here are not unfamiliar. After all, it is not the case that those individual differences that used to be important are no longer, but merely that there is a need for more skill breadth. However, given the many characteristics that are arguably important, future research needs to verify which characteristics actually are and are not predictive of performance in virtual organizations.

This research direction will not be without its challenges. First, thought must be given to how performance should be measured in virtual organizations. Which performance indices capture its multidimensional nature?

Are there new performance indices unique to virtual organizations such as video or text archives of online communications that could be content coded for valued behaviors? Dynamic performance indices that capture growth and contributions over time, perhaps similar to those used in training evaluation, may be necessary to capture the true nature of performance in virtual organizations. There will also be a need to distinguish individual from team-level contributions raising numerous multi-level issues when individual-level measures are used to predict team-level outcomes (Jones et al., 2000).

Another issue is whether the online delivery of traditionally paper-pencil or face-to-face selection tools changes the constructs measured and the measurement properties of a test. The content of a test is always confounded with the mode of delivery. When one extends a previously face-to-face team exercise to a live, interactive chat room, for example, the mode of delivery is changed and the nature of this confounding changes as well. Tests that confound the measurement of some skills with other skills are not inherently bad tests. The introduction of typing skill to an in-basket e-mail exercise meant to capture time management may be very appropriate. However, special care must be taken to evaluate how construct measurement changes in an online environment. Interpersonal relationship building as a facet of interpersonal skills may have different behavioral indicators when the two parties potentially never meet face-to-face. When the defined constructs change, there will be a need to reexamine the measurement properties of tests.

Challenges aside, culminating validity and incremental validity evidence will be particularly important for those characteristics such as conscientiousness and agreeableness, where initial research has produced conflicting results. It is difficult to determine whether high levels or low levels of these traits facilitate or inhibit performance in virtual organizations when one study suggests a trait is detrimental in an autonomous environment, while another study indicates that the same trait facilitates teamwork. This type of research will also be important for managing the tradeoffs between various predictor sets. The list of important characteristics presented here is extensive. As we noted earlier, it will not make sense for virtual organizations to attempt to measure all of these characteristics. Thus, future research directed at teasing out the incremental validity of various predictor combinations will represent a must needed step toward designing efficient and effective selection systems.

NOTE

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CHAPTER 8

TRAINING AND DEVELOPMENT IN VIRTUAL ORGANIZATIONS

Raymond A. Noe and Marcia J. Simmering

ABSTRACT

Training and development practices in virtual organizations need to emphasize not only learning related to knowledge acquisition, skill development and behavior change, but also knowledge sharing and linking to resources. The chapter begins with a discussion of how to identify the competencies that employees need to be successful in virtual organizations (e.g., adaptability and flexibility). We discuss how to effectively design and use training and development practices to create and share knowledge and facilitate learning. These practices include web-based training, e-learning, action learning, knowledge management systems, on-the-job experiences, and relationships (including communities of practice and mentoring). The characteristics of a career management process that can be used to motivate and retain employees in virtual organizations is discussed. The chapter concludes by identifying research needs that will advance knowledge of training and development in virtual organizations.

INTRODUCTION

Virtual work arrangements include virtual teams as well as teleworking, which is work that is conducted in a remote location, distant from central offices where the employee has limited contact with peers but is able to communicate electronically. As Greenberger and Wang (2002) suggest, the critical feature of these work arrangements are that location, organizational structure, and employment relationships are not limiting factors. For example, employees from two or three organizations may work together on projects designed to meet the strategic and operational needs of the organizations they represent. Similarly, employees within a single organization may work with peers from different units or functions on a project team.

Virtual organizations by definition need to be adaptable and flexible. They need to be "learning organizations." A learning organization is an organization that is skilled at creating, acquiring, interpreting, transferring, and retaining knowledge, and at modifying its behavior on the basis of this new knowledge (Garvin, 2000). What are the characteristics of learning organizations? Based on Garvin (2000), virtual organizations need to be learning organizations in the sense that they know what they need to know about customers, competitors, markets, technology, or production processes and are actively trying to obtain this information. They also need to avoid repeating mistakes by reflecting on past experiences, identifying the lesson learned, and sharing the knowledge throughout the organization. Training and development activities such as active learning and practicing knowledge management play key roles in helping companies avoid repeating mistakes. Virtual organizations need to try to retain key personnel and at the same time institutionalize expert knowledge so that it is available should talent leave the company. Finally, it is not enough to have knowledge and to design training and development activities to create and share knowledge. Virtual organizations need to take action and make changes based on that knowledge. Cultural expectations are such that employees at all levels are expected to actively pursue training and development activities, share knowledge, and act on it. Learning is viewed as important as immediate productivity and service demands, because learning is responsible for the long-term survival of the company.

In this chapter, we discuss training and development practices that are essential for virtual organizations. The chapter devotes substantial coverage to training delivery methods such as web-based and intranet training that are very well suited for delivering training courses to geographically dispersed employees on an as-needed basis. But for virtual organizations, training and development needs to go beyond high-tech training methods and delivery technology. The important competencies that employees need in order to work effectively in virtual work arrangements need to be identified. To learn these competencies, training courses are not sufficient. Learning needs to be facilitated by creating learning communities, knowledge management practices, and on-the-job experiences. As is the case for all organizations, but particularly for virtual organizations, learning needs to be viewed as more than a one-time event; it must be a critical part of the organization's culture. The chapter begins by discussing the competencies that are needed in the virtual organization from the individual, team, and manager perspectives. Next we discuss the concept of learning and how learning can be facilitated in virtual organizations through formal programs as well as communities of practice and knowledge management systems. The chapter concludes with a discussion of the role of career management in virtual organizations.

COMPETENCIES NEEDED IN VIRTUAL ORGANIZATIONS AND TRAINING IMPLICATIONS

An important issue in training for virtual organization is identifying what types of job skills employees need to be effective. Certainly employees need technical and functional skills specific to their job. It is highly unlikely that a company is going to assign employees to virtual work who don't have the necessary technical skills to perform their jobs in the traditional organization. However, despite having sound technical skill, employees need to be adaptable, versatile, and tolerant of uncertainty. Virtual organizations require employees to interact without face-to-face contact and with persons from across the globe who have different values. As noted in other chapters, virtual work arrangements may require employees to quickly band together electronically with others to accomplish a task or solve a problem and then move to another virtual arrangement with a different set of colleagues. Pulakos, Arad, Donovan, and Plamondon (2000) identified the adaptive performance requirements of jobs. Through a review and critical analysis of more than 1000 critical incidents that described examples of adaptive behavior across several different types of jobs, they found support for the eight dimensions of adaptive performance shown in Table 1.

Table 1. Dimensions of Adaptive Performance

Title	*Definition*
Handling emergencies or crises	Reacting quickly to emergency situations; quickly analyzing situations and making decisions, maintaining emotional control and objectivity during tasks

Table 1. Dimensions of Adaptive Performance (Cont.)

Title	*Definition*
Handling work stress	Remaining composed while dealing with difficulties; not overreacting to unexpected situations; managing frustration well; demonstrating resilience; acting as a calming influence to others
Solving problems creatively	Employing unique methods and generating new, innovative ideas; integrating information to come up with new solutions; entertaining wide-ranging possibilities others may miss; developing innovative methods of using scarce resources
Dealing with unpredictable or uncertain situations	Taking effective action without having to know all the facts; quickly changing behavior for unexpected events; adjusting plans, goal, actions, and priorities to deal with changing situations; providing structure in dynamic situations; refusing to be paralyzed by mental uncertainty
Learning tasks, technologies, and procedures	Demonstrating enthusiasm for learning; keeping knowledge and skills current; quickly and proficiently learning new methods for work; preparing for changes in work demands; taking action to improve deficiencies
Demonstrating interpersonal adaptability	Being flexible and open-minded when dealing with others; listening to others' opinions; accepting of developmental feedback; working well with others; understanding others' behavior
Demonstrating cultural adaptability	Learning about and understanding the needs and values of other groups, organizations, and cultures; adjusting behavior to work with people from other cultures; maintaining positive relationships with other groups, organizations, or cultures
Demonstrating physically oriented adaptability	Adjusting to challenging environmental states; pushing self physically to complete demanding tasks; becoming proficient in performing physical tasks as necessary for job

Note: Based on Pulakos, Arad, Donovan, and Plamondon (2000).

To effectively use these performance dimensions for training purposes, the organization must first identify the adaptive performance requirements of specific jobs and then decide which of these requirements will be used to screen employees for positions on virtual jobs or teams. Those dimensions that are important for the job and the company decides to train for should be emphasized in action learning, job experiences, web-based training, and mentoring programs designed to prepare employees for virtual work. These types of training methods are preferred because adaptive performance and transfer of training is most likely to occur when there is fidelity between the training situation and the work situation.

TRAINING AND DEVELOPMENT CHALLENGES IN VIRTUAL ORGANIZATIONS

One of the key differences between work in a virtual organization and work in a traditional organization is that employees, teams, and departments are more interdependent (DeSanctis, Staudenmayer, & Wong, 1999). Employees are interdependent with fellow team members, external customers, and suppliers. This interdependence places a premium on communications and conflict management skills as well as the ability to be adaptable and flexible to working with different types of people and taking different roles. Crandall and Wallace (1998) suggest that the skills or competencies needed to be effective in a virtual organization include strategic competencies, process competencies, and individual competencies. Strategic competencies are the core competencies of the organization that create a competitive advantage. These competencies are usually the focus of top management teams. Process competencies are the knowledge required to successfully perform the company's service or build its product. This includes basic skills related to the process or operational skills, support skills or skills such as engineering that support the business processes. Individual competencies include the individual or team characteristics that are related to effective performance. Training and development will be needed in the areas shown in Table 2.

Table 2. Examples of Important Skills and Competencies Needed in Virtual Organizations

Team-Level	Shared sense of purpose
	Operating guidelines
	Roles and responsibilities
	Giving and receiving feedback
	Analyzing and solving problems
	Decision-making process and decision-making tools
	Conflict management
	Defining goals and Measuring success
	Process analysis
	Team health (building consensus, commitment, ownership, trust)
	Choosing and integrating new team members
	Sensitivity to group communications
	Collaboration
	Performance management
	Continuous learning

Table 2. Examples of Important Skills and Competencies Needed in Virtual Organizations (Cont.)

Individual Contributors	Dealing with change
	Adaptability
	Flexibility
	Willingness to Learn
	Skills related to the job
	Skills related to information access and use
	Emotional intelligence
	Communications in virtual work environments: protocol and use of technology
	Building alliances, contracting
Managers	Managing alignment (e.g., helping team understand goals, scan company environment for useful information for teams)
	Coordinating Activities (e.g., ensuring that team is meeting internal and external customer needs, help team resolve problems with other teams)
	Facilitating decision-making process (e.g., helping team use effective decision making processes)
	Encouraging continuous learning (e.g., creating a culture that encourages knowledge creation and sharing, develop employees and teams through coaching)
	Creating and maintaining trust (e.g., listening and responding openly to ideas, insure that teams members take responsibility for workload and meeting internal and external customer needs, informing employees about financials, problems, and successes related to company and team performance)
	Managing through technology (e.g., knowing how to conduct meetings by e-mail)

Note: Based on Carr (1991), Snell (1994), Jarvenpaa, and Ives (1994), Stevens and Campion (1994), Crandall and Wallace (1998), Fisher and Fisher (1998), and Cascio (2000).

Companies are being challenged to develop and deliver training customized to individual contributors (employees), teams, and managers. Virtual teams are characterized by a lack of homogeneity, collocation, and consistent membership (Fisher & Fisher, 1998). Virtual knowledge teams have members that are distributed across multiple time zones, countries, and/or companies. They are more diverse than other knowledge teams, with team members representing different specialties and perhaps different cultures, languages, and organizational allegiances. These teams do not have constant membership. Team members may move on and off the team at different points in a project. Some members may participate in all team tasks while others may only work on some. Successful virtual knowledge teams need structure (e.g., reporting relationships, membership), leadership (e.g., empowered, shared leadership, integration with other teams), shared values (e.g., agreement on what is valued as a team, how to make decisions, how to solve problems) and rewarded goals (e.g., agreement on key goals, what customers need, how to reward goal accomplishment). If team members are from different cultures, working from a distance can also make language and cultural differences even more difficult to deal with. For example, teams responsible for evaluating business opportunities for Shell Technology Ventures, a subsidiary of Royal Dutch/Shell found that it was challenging to create a team process so structured that people can move forward without creating excess bureaucracy that can inhibit team members who perform best in an unstructured environment. Dutch team members prefer more details about how a process works, who will make a decision, and what the next steps are, than their colleagues from the United States.

Managers may resist virtual work because they experience these changes as a personal threat. Virtual work may threaten the manager's self-concept including his or her personal identity, self-esteem, and sense of control (Wiesenfeld, Raghuram, & Garud, 1999). For example, in virtual work, the techniques that managers use to evaluate performance may be inappropriate or unrealistic. Direct supervision of employees' behaviors and performance is impossible when employees are geographically dispersed. Virtual work also introduces uncertainty—the uncertainty of whether direct reports will be able to function effectively in a virtual team and which managerial skills will be effective. Virtual work actually may question the need for managers because employees are self-regulated. This makes traditional managerial skills such planning, controlling, and organizing activities unnecessary and creates the need for new managerial skills that may be undervalued in traditional work environments. These new skills include advising, coaching, encouraging continuous learning, and aligning team goals and objectives with company goals and objectives.

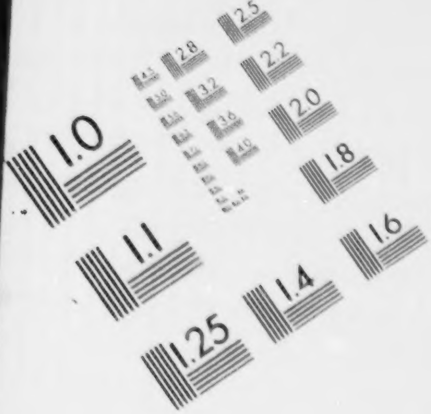
Because in virtual organizations the nature of jobs and employee roles are often changing and new skills may be required by employees to take on different roles, competency models should be the backbone for any virtual organizations training and development process. Traditionally, training and development activities are based on tasks or knowledge, skills, or abilities derived from job analysis that are very job-focused; are not linked to business goals; and emphasize differences, not similarities, among jobs. A competency model identifies the competencies necessary for each job as well as the knowledge, skills, or abilities underlying each competency (Lucia & Lepsinger, 1999). A competency is an area of personal capability that enables employees to successfully perform their jobs. An effective competency-based training and development system includes a set of behaviors that describe what the competencies look like on the job, a process to identify which employees are currently using the competencies, communication of training and development opportunities that can help employees learn and develop the competencies, and support and follow-up to ensure that competencies are used (Lucia & Lepsinger, 1999).

DEVELOPING COMPETENCY MODELS

One way to understand competency modeling is to compare it to traditional job analysis. Job analysis is more work and task focused (what is accomplished) while competency modeling is worker focused (how objectives are met or how work is accomplished). Focusing on "how" versus "what" provides valuable information for training and development. Competency modeling focuses on "how" objectives are met or work is accomplished. A recent study asked competency modeling experts (consultants, HR practitioners, academics, industrial psychologists) to compare and contrast competency modeling to job analysis found that (Schippmann, Ash, Battista, Carr, Eyde, Hesketh, Kehoe, Pearlman, Prien, & Sanchez, 2000):

- Competency models are likely to use the same competencies regardless of jobs or intended applications while job analysis is likely to focus on specific tasks, competencies, and performamce standards that are more based on the intended use of the information.
- Competency models are more likely to link competencies and the company's business goals.
- Competency model approaches provide descriptions of competencies that are common for an entire occupational group, level of jobs, or for the entire organization. Job analysis describes what is different across jobs, occupational groups, or organization levels.
- Job analysis generates specific knowledge, skill, and abilities for particular jobs. It is used to generate specific requirements to be used for employee selection. The competencies generated by competency modeling are more general and believed to have greater application to a wider variety of purposes including selection, training, and employee development, and performance management.

A competency model refers to a model that describes a specific combination of knowledge, skills, and characteristics needed to effectively perform a role in a company. Competency models are used for employee selection, training and development, succession planning, and performance management. Competency models are useful for training and development in several ways: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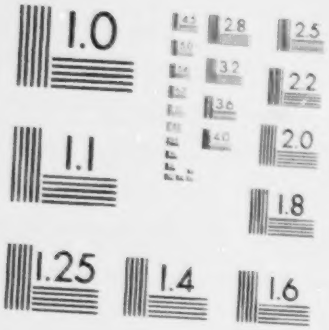
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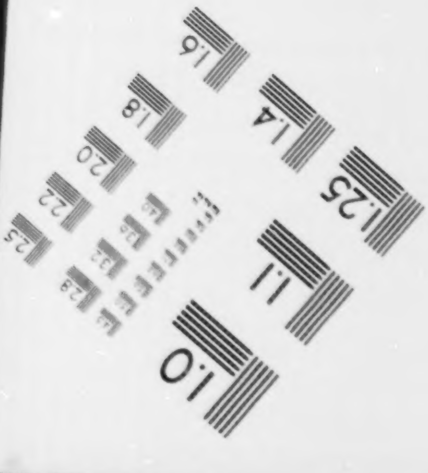
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- They identify behaviors needed for effective job performance. These models ensure that feedback given to employees as part of a development program (such as 360-degree feedback) relate specifically to individual and organizational success.
- They provide a tool for determining what skills are needed to meet today's needs as well as the company's future skill needs. They can be used to evaluate the relationship between the company's current training programs and present needs. That is they help align training and development activities with the company's business goals. They can be used to evaluate how well the offerings relate to anticipated future skill needs.
- They help determine what skills are needed at different career points.
- They provide a framework for ongoing coaching and feedback to develop employees for current and future roles.
- They create a "road map" for identifying and developing employees who may be candidates for managerial positions (succession planning).

Table 3 shows the steps in developing a competency model.

Table 3. Steps in Developing a Competency Model

Step 1	Determine how you will identify effective job performance
Step 2	Data collection • Stories • Critical incidents
Step 3	Observation and recording of employee behavior
Step 4	Preliminary analysis of the data to identify themes and patterns related to knowledge, skills, abilities, and other characteristics
Step 5	Review of initial competency model • Focus groups • Surveys
Step 6	Refining the competencies
Step 7	Final review of competency model by subject matter experts

Note: Based on Lucia and Lepsinger (1999).

The first step is to identify critical incidents or stories that relate to effective job performance. These can be collected through individual or small group interviews (i.e., focus groups) with job incumbents or "subject matter experts." The second step is to collect the data. The interviewers should use open-ended questions, and ask for stories or examples of job success. The third step is to observe persons performing the job. This offers a "reality check" that can be used to validate the information collected in the interviews. The fourth step involves examining the "data" collected though interviews and observation to identify themes and patterns related to specific knowledge, skills, and characteristics. This creates a rough draft of a competency model that then can be checked to ensure that it is complete and really does measure the competencies needed to be successful in the job. The fifth step involves using focus groups or surveys to identify the relevance of competencies and how frequently they are used to perform a job. The information gained from the focus groups or surveys is similar to that gained from a task analysis survey. The sixth step involves reviewing the competencies based on the information gained from the focus groups or surveys and adding, deleting, or redefining competencies. The last step is to give subject matter experts (job incumbents, managers, trainers) a final opportunity to suggest changes to the model.

Table 4 provides an example of a sales competency model. The model identifies knowledge and skills that can be focused on in training as well as ability and personality characteristics that can be used to select employees.

Table 4. Example Sales Competency Model

Skills	Basic selling skills
	Establishes rapport, determines customer needs, relates benefits to product features, handles objectives, and closes sale
	Strategic selling skills
	Listens beyond product needs and establishes a vision of a customer-supplier relationship that supports the strategic direction of both organizations
Knowledge	Financial analysis
	Understands the financial impact of decisions on the customer, the customer's customer, and the organization
	Market analysis
	Understands market trends and the implications of those trends for the industry, customers, markets, and the competition
Ability	Mental agility
	Is able to deal with multiple issues and details, is alert, has the capacity to learn
Personality	High endurance
	Is willing and able to put off immediate gratification and focus on another person's needs; is able to invest time and energy over a long period of time for a future benefit or reward

Note: Adapted from Lucia and Lepsinger (1999).

TRAINING IN VIRTUAL ORGANIZATIONS SHOULD FOCUS ON KNOWLEDGE AND LEARNING

For a virtual organization to be truly successful, it must create new knowledge, disseminate it widely through the company, and quickly use it in new technologies and products. For virtual organizations, having knowledge, knowing which employees possess it, and sharing knowledge within and across functions, teams, and individuals is critical for effectiveness. Teams and employees must be provided with tools that they need for finding knowledge that can be used to provide a service, develop or manufacture a product, refine a process. There are two types of knowledge that are important—tacit knowledge and explicit knowledge (Nonaka & Takeuchi, 1988). Tacit knowledge refers to personal knowledge based on individual experience and influenced by perceptions and values. The communication of tacit knowledge requires personal communications through discussion and demonstrations. Explicit knowledge refers to manuals, formulae, and specifications that are described in formal language. Explicit knowledge can be managed by placing it in a knowledge database or it can be managed by a knowledge management system. The types of tacit and explicit knowledge that are important for employees include knowledge about the company, customers, the company's business processes (Tobin, 1998). Employees need to understand the company's business, strategy, financial statements, and how the company is organized. This helps them to have some idea of where to go with new ideas, seek help with problems, and create opportunities for cross-functional businesses. Employees must know who the company's customers are, what they need, why they choose to do business with the company. Finally, employees must have an understanding of the major business processes and a more detailed understanding of the business process that they are involved in.

How might different types of knowledge be shared? According to Nonaka and Takeuchi (1995), there are four modes of knowledge sharing: socialization, internalization, externalization, and knowledge creation. These are shown in Figure 1. Socialization involves sharing tacit knowledge by sharing experiences. Knowledge is shared and learning occurs through observation, imitation, and practice. Externalization involves translating tacit knowledge into explicit knowledge. This takes the form of metaphors, models, concepts, and equations. Combination involves systematizing explicit concepts into a knowledge system by analyzing, categorizing, and repurposing information. Formal courses and seminars convert knowledge in this way. Internalization means that explicit knowledge is converted to tacit knowledge. Simulations, action learning, and on-the-job experiences are used to create tacit knowledge from explicit knowledge.

		TO	
		Tacit Knowledge	**Explicit Knowledge**
FROM	**Tacit Knowledge**	Socialization	Externalization
	Explicit Knowledge	Internalization	Combination

Figure 1. Four models of knowledge sharing. *Note:* Based on Nonaka and Takeuchi (1995).

Creating Knowledge Networks. To gain access to knowledge, particularly in virtual organizations where employees are geographically dispersed or work in autonomous teams, it is critical that employees are able to organize, store, and gain access to knowledge. This is usually accomplished through a knowledge network. Knowledge networks include a computerized database of company knowledge and experience; a directory of knowledge, skills, and abilities held by teams and employees through the company; a directory of learning resources, including internal and external resources, that employees can use or their personal learning contracts; and a set of tools and methods that help employees learn from each other and learn together (Tobin, 1998). For example, Xerox has created a database of "communities of interests." Through this, employees throughout the organization who have a common interest in technology, product, service, or process communicate informally to share and build knowledge for themselves and the company, even though they may not be working formally together. Dow Chemical's database of patents, trademarks, and copyrights also includes vital business processes and practices. This helps employees avoid spending time, effort, and money on practices or processes that have already been completed in another part of the company. Ernst & Young and Arthur Andersen have information on employees' skills and competencies to help assemble project teams.

The largest barriers to knowledge management are cultural (Gery, Malcolm, Cichelli, Christensen, Raybould, & Rosenberg, 2000). Employees have a tendency to keep knowledge to themselves so they can be considered the experts. It takes a large commitment by the organization to plan and budget for capturing knowledge and structuring it in a useful form that is accessible by all employees. Also, the organization needs to validate the usefulness of the system. One way to do this is to show potential users how the system has been useful and rewarding to others.

Knowledge management needs to be linked to business applications. In an ideal knowledge management system, information bases would exist but users would not need to directly interact with them (Degler & Battle, 2000). Business applications would be designed to support work goals. Users are able to focus on their own work, using the application as a tool. When information could be useful, the application would automatically identify the need, the information base for information, receive the information, package it, and present it to users in the most appropriate format. The users get the information they need and work without interruption. Given that employees in virtual teams may vary in their levels of expertise and knowledge, knowledge management systems need to be adaptive to the users' expertise and work context. This type of system has both an evaluation of the users' expertise and work context. The user interface should regulate content by identifying topics appropriate for novices or experts. More frequent and detailed feedback should be provided if the user is a novice, more instruction and more explicit directions should be available to novices, and the application should provide for greater structure and more decision support for novices. It could help novice users categorize the problem, structure the problem space, and choose the appropriate action based on best practices and problem-solving patterns of experts (Degler & Battle, 2000). The process of developing knowledge management systems is shown in Figure 2.

Analysis and design involves understanding the work from the perspective of the job performer and subject matter expert. The work environment should be observed and focus groups should be observed to explore important aspects of the work and knowledge needed. Knowledge flows in the company should be examined. How good versus poor performers and differences in novices' vs. experts' use of knowledge needs to be examined.

One example of the potential benefits of knowledge management comes from British Petroleum (Davenport & Prusak, 1998). BP Exploration, the division of BP that explores for and produces oil and gas, organized its regional operating centers into forty-two autonomous business assets. BP wanted these units to have the freedom to develop the processes

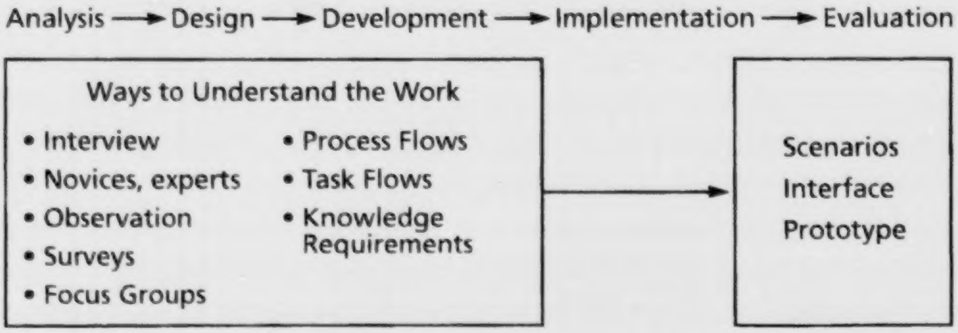

Figure 2. Process of developing a knowledge management system. *Note:* Based on Raybauld (2000).

and solutions appropriate to their specific problems. Best practices and innovations could be "shared" in other places in the company. As a result, BP launched a project designed to develop effective ways for team members to collaborate across different locations. The program ("The Virtual Teamwork Program") recognized that knowledge was important and that the company needed to develop appropriate ways to share it. The program's goal was to build a network of people to allow knowledgeable people talk to each other. The hardware and software used for the program included desktop videoconferencing equipment, multimedia e-mail, shared chalkboards, document scanners, groupware, and a web-browser. This equipment was chosen because it captured the richness of communications, allowing human interactions to be as "real" as possible. A training program was implemented that showed employees how to use the technology and helped them understand how it could make them more effective in their work. The trainers were known as coaches because the learning process was interactive. The coaches and employees communicated to each other using the virtual team stations, a real-life demonstration of the system's value for collaborative work and knowledge exchange. The emphasis was on personal contact and human needs. Eighty percent of the coaches' time was devoted to helping team members link their business objectives to the system capabilities and helping them to consider new ways of working made possible by the equipment. One example of the success of the program comes from the North Sea. When an equipment failure occurred on a North Sea drilling ship, the ship's engineers used the video equipment and a satellite link to transmit images of the faulty equipment to a drilling equipment expert miles away. He quickly diagnosed the problem and guided the engineers to make the necessary repairs.

BP has also instituted "virtual coffee breaks." During these coffee breaks, up to twenty people at eight separate locations discuss current work problems and ideas that have developed. BP hopes that the conversations will pay off in several ways. First, employees may get a better idea of what is happening in other places in the company. Second, participants might discover a connection between projects or suggestions might help solve a difficult problem.

USE OF LEARNING TECHNOLOGIES FOR DELIVERY AND INSTRUCTION IN TRAINING

Because of the need to reduce training costs, the increased sophistication, greater availability, ease of use, and reduced costs of technologies, and the need to make training accessible on a twenty-four-hour basis to geographically dispersed employees, the use of learning technologies is on the rise.

Learning technologies refer to electronic technologies that deliver information and facilitate skill development and knowledge acquisition (Piskurich & Sanders, 1998). Recent surveys by leading training experts suggest that the use of learning technologies will double in the next five years. Conducting training programs from a centralized location generates travel costs and hours of lost work time. On-line learning reduces travel costs and allows employees in a virtual organization to get access to training virtually at any time or place in the world. Also, skills training can be delivered much faster and in a sorter period of time than traditional training that might take years for all employees of a large company to complete. For example, KPMG estimates that its web-based learning programs cost 70% less than traditional training and are completed in shorter time (Dobbs, 2000). KPMG used the Web for a company-wide training initiative designed to acquaint employees with new software developments and e-commerce principles. The course was designed in five weeks and delivered to all 8500 of its U.S. employees in 90 days (Bell Communications, 2000).

The use of learning technologies does not preclude the use of a systematic method for designing instructional systems. The instructional systems design model includes analysis, design, development, delivery, and evaluation (see Noe, 2002, for a more detailed discussion of the instructional system design model). The design, development and delivery phases are most affected by the use of learning technologies. The needs of the learners, the needs of the company, and the technology capabilities of the company need to be considered. Table 5 shows the considerations for using technology for training in virtual organizations.

Table 5. Principles of How Learning Occurs in the Workplace and Its Relationship to the Web

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Learning is fundamentally a social activity

Learners can communicate with a "real person" by e-mail, chat room, or discussion

Communities of learning can form anywhere, can be informal and formal, virtual and face-to-face, and employees can be a member of many different communities

Web learning community does not force learners into multiple groupings

Identify the different communities that employees identify with such as engineers or managers. This helps identify what information they will access, the type of knowledge they seek, and who they consider to be "experts"

Learning is an act of community membership

Encourage learners to share knowledge in the Web learning environment

The web environment helps create a commitment between learners who may never meet face-to-face but share a common learning community

Table 5. Principles of How Learning Occurs in the Workplace and Its Relationship to the Web (Cont.)

Learners gain knowledge from observations and participation in activities and situations
The web helps learners practice activities in the real work environment
Use actual company examples that are already available on the intranet
Organize the web site around what learners need to be productive
Learners perceive their identity based on their ability to contribute to and affect the community
Learners are given real work to do
The web environment provides regular feedback
Structured, moderated discussions are provided that include company experts. These help learners feel a part of the workplace community.
Learning requires access and opportunity to contribute
The web environment does not depend on hardware and software that may not be available to all learners
Learners have contact with more skilled employees and their work
Learners can use the web at their convenience (at-home, during off-hours, at work)
Learners learn what allows them to participate in the communities of practice they want to join
The web fits into the way that employees are already learning in informal or unstructured ways on the job
The web learning environment is constantly being updated and improved
Learners can find what they need and avoid frustrated searches

Note: Based on Beer (2000), Noe (1999), and Belanger and Jordan (2000).

It is important to note that the process of delivering training using technology involves choice of an instructional method, presentation method, and distribution method (see Sanders, 1998). Instructional methods include how the information is taught to learners (case studies, role plays, simulation, etc.). There are a number of different presentational methods including groupware, multimedia, teleconferencing, virtual reality, computer-based instruction, interactive television, and video. For each presentation method, there are one or more ways that the "message" can actually be transmitted. These include CD-ROM, electronic mail, Internet, intranet, satellite television, World Wide Web, simulators, or videotape. The key concern is the best way to engage the learner (through instructional method and presentational method) taking into account the limitations of the company's technology infrastructure (i.e., distribution method). For example, web-based training might be the best way to give geographically dispersed virtual team members a good learning experience, but if not all the team members have access to computers with the appropriate level of broadbanding needed to capture video, web-based training may not be the best option.

For the effective media to be chosen to facilitate learning, the type of interaction employees should engage in, the synchronicity of that interaction when it involves personal communications, and the amount of control over the content and pace of instruction needs to be considered (Berge, 1998). For example, real-time, two-way video is more effective than asynchronous discussion in team building. Asynchronous communications gives learners the opportunity to organize their thoughts and reflect on responses to questions posed. Table 6 shows the relationship between type of communications, level of performance, and types of cognitive skills developed. As the table illustrates, synchronous and asynchronous communications are appropriate for each level of performance.

Table 6. Relationship between Type of Communication, Level of Performance, and Type of Cognitive Skills Developed

		Type of Communication		
		Synchronous	*Asynchronous*	*Cognitive Skill*
Level of Performance	Instructor controlled	• Lecture • Discussion	• Assigned readings (hard-or softcopy) • Audio/video taped • Demos and lectures • Mail (postal or email)	Knowledge
	Guided learner controlled	• Annotated problem-solving • Case study/self-contained	• Role play • Tutorials • Guided simulations	Application
	Learner controlled	• Original problem-solving • Open-ended case study • Interactive video • Computer-based instruction	• Open-ended case study	Analysis, synthesis, evaluation

Note: Based on Berge (2000).

LEARNING THROUGH TRAINING AND DEVELOPMENT METHODS

The goal of training and development methods is learning; that is, creating a permanent change in employees' competencies, knowledge, skills, or behaviors. To facilitate learning, employees need to have a goal or guide to give them direction and motivation to learn. Learning contracts are necessary components to create a virtual organization that can effectively and quickly utilize the knowledge and skills of employees. The learning contract is the primary guide for employees' learning activities. It specifies the learning that the employee will pursue, how learning will be transferred back to the job, and the expected changes in business results that will result from the learning.

There are many different available training methods such as behavior modeling, business games, and adventure learning. We focus on training and development methods that we believe may be most useful for employees in virtual organizations. These methods include e-learning, job experiences, action learning, and relationships with mentors, coaches, and peers and experts through communities of practice.

E-learning

E-learning refers to training delivered by computers on-line through the Internet or the web. Education, training, and structured information overlap. E-learning can include task-based support, simulation-based training, web-based training, distance learning, and learning portals. E-learning involves electronic networks which enable information and instruction to be delivered, shared, and updated instantly. It is delivered to the trainee using computers with Internet technology. E-learning goes beyond training to include the delivery of information and tools that improve performance.

Some important features of e-learning include collaboration and sharing, links to resources, learner control, delivery, and administration. E-learning involves not only providing the trainee with content, but can give learners the ability to control what they learn, the speed at which they progress through the program, how much they practice and even when they learn. E-learning also allows learners to collaborate or interact with other trainees and experts, and provides links to other learning resources such as reference materials, company web-sites, and other training programs. Text, video, graphics, and sound can be used to present course content. E-learning may also include various aspects of training administration such as course enrollment, testing and evaluating trainees, and monitoring of trainees learning progress. Various delivery methods can be incorporated into e-learning including distance learning, CD-ROM, as well as the Internet.

E-learning methods share several common characteristics. First, they are all available to serve geographically dispersed learners. As stated previously, this is a major benefit to virtual organizations, which typically have employees who are located in physically distant areas. Second, information is available at almost any time, depending on how the training is designed. Unlike classroom learning, which takes place in a single location at limited times, these technologies may be available at all times. This improves performance because employees can access important knowledge when they need to, rather than learning it long before it is necessary and forgetting it when they need to use it. One limitation associated with just-in-time training is that trainees may not be aware of what information is available. That is, because they have not been to a classroom session to learn the totality of the material, they may not realize that certain information is available to them. However, with technology that allows for a search of training material, this may be a moot issue. Finally, each of these systems incurs great start-up cost and continued maintenance, all of which require a commitment to the long-term use of these technologies for them to be economically feasible. This may mean that more attention should be paid to evaluation of the training to assess the benefits in relation to the costs.

Cisco Systems' e-learning environment includes learning portals through which learners are able to connect with an instructor and other managers seeking the same learning goals (Galagen & Salapek, 2000). Cisco has a worldwide system for training its managers. Managers from any of Cisco's offices can go on-line anytime to work on the requirements in their personal learning portfolios. In addition to using e-learning to train employees, many organizations are using e-learning to market themselves to customers (Aldrich, 2000; Barron, 2000). Companies such as SAP are using e-learning that includes virtual keynote addresses, seminars, and courses to educate their customers including consumers, vendors, and suppliers. Sun Microsystems has learned that training end-users and third-party integrators on the use of its programming languages and office applications is important for product sales. Microsoft embeds learning into every upgrade of its operating system. Office 2000 has several different help tools including Answer Wizard, Office Assistant, and Help Pane. Both Sun and Microsoft offer a combination of instructor-led training, e-learning, and certification programs to customers and "free agent" learners. Focusing on enabled learning at the time it is needed in a way that integrates with the user's work or usage pattern is key to increasing customer satisfaction. Customers demand fast-delivered, low cost training that e-learning can offer. Merrill Lynch is a leading financial management and advisory company with a global network of offices and client assets of nearly $2 trillion. Merrill Lynch offers a broad range of capabilities through its principal businesses which include investment banking, investment management, and financial consulting. Traditionally, thousands of Merrill Lynch employees have received training in basic financial planning, advanced concepts of investing and other topics at the company's residential training center near Princeton, New Jersey. With about 1000 new client associates who support financial consultants in the branch offices joining the company each year, Merrill Lynch couldn't bring them all to the residential training facility, or send trainers to each branch location to make them effective employees. As a result, Merrill Lynch created the Learning Network (Rosenberg, 2000). The Learning Network includes online training, databases of stories of successful financial consultants, online job aids, and performance support tools. In addition, the Learning Network allows financial consultants to personalize their learning network home page which customizes a learning plan for them. The ability for all employees to access e-learning has changed the role of classroom instruction. Previously, classroom training delivered all training content. Now prerequisite training is provided on the Learning Network for every classroom session. The deign of classroom and e-learning component is coordinated insuring that there is little redundancy between the two. E-learning is used to provide fundamental information, examples, best practices, consulting experiences, and key communications from the company. The classroom component focuses on applications, practice, and personalized coaching from employees who serve as instructors. Future plans are for the Learning Network to allow live and interactive presentations to be delivered through the system. Improved search capabilities will allow users to find related training content anywhere in the company and in web sites outside the company. Future e-learning content will be built by each employee, customized to their needs.

Distance learning. In distance learning, the learner is remote from the instructor (Belanger & Jordan, 2000). It may be offered in real time, in which an instructor delivers a lecture that is available to learners at the time it is given though technology. Conversely, distance learning can be asynchronous, in which learners may access the information at any time, putting them more in control of the pace of learning. In the case of a real-time lecture delivered through technology, distance learning may be evaluated much like a traditional classroom setting. A major difference, however, is the lack of face-to-face interaction of the instructor and students. Distance learning may not be appropriate for material that may require more personalized attention from the instructor. One particular type of distance learning that is gaining popularity is web-based training, which we describe in the next section.

Web-based training. Web-based training (WBT) is "a hypermedia-based instructional program which utilizes the attributes and resources of the World Wide Web to create a meaningful learning environment where learning is fostered and supported" (Khan, 1997). Web-based training has experienced a surge in popularity in recent years, mainly because of its convenience. Some WBT may be categorized as distance learning and therefore shares some of its benefits and limitations (Belanger & Jordan, 2000). However, WBT can also be used on site and at specified times (i.e., formalized training sessions). Therefore, WBT varies in its similarity to typical training procedures experienced by employees.

Although WBT is similar to distance learning, there are differences. While distance learning often takes the form of a lecture intended to provide declarative or procedural knowledge, web-based training can be tailored to fit a wide range of content and may offer a broad spectrum of features. These features could include streaming video and audio, interactive games, practices exercises, quizzes, discussion boards, and hyperlinks to more information. With the capability for features such as, WBT can nearly mirror having a personal tutor guide a learner through the training. One characteristic in particular that makes WBT appealing to many learners and organizations is its possible interactivity. This interactivity may improve learning by increasing engagement and exposure to the material. There has been little research specifically on the benefits of features of web-based training, but there is support for the effectiveness of interactive practice and hyperlinks on learning (Simmering, 2000).

Learning portals. Learning portals are websites that provide a combination of courses, collaboration, and community. They provide one-stop shopping for a variety of training programs from different vendors and access to on-line classes. They were initially set up with the idea that and individual purchaser (an employee or other "customer") could purchase training using a credit card. The characteristics of learning portals vary (Armstrong, 2000; Hall, 2000). Some allow users to pay, register, and attend courses on-line; others offer only access to classroom training programs at colleges or universities. In addition to instruction, some sites provide mentors who can tutor students as well as discussion groups where students can communicate with each other. For example, at www.knowledgeplanet.com 10,000 courses are accessible ranging in price from $20 for a single course to $20,000 for a certification program. The course lengths range from 2 hours to 16 hours each. Available courses cover information technology topics (e.g., networks and software) as well as "soft skills" (e.g., performance coaching). Many of the courses include objectives, practice exercises, and testing or feedback. Secure discussion areas are provided for learners.

Developing Effective E-Learning

Although e-learning may provide a great deal of potential benefit, it is not always easily implemented. Below we discuss the key issues to consider in developing e-learning programs.

Dedicating time for learning. On-line learning blurs the distinction between training and work. Expectations that trainees will be motivated and able to complete web-based training during breaks in their normal workday or on their personal time are unrealistic. Managers need to give employees time in their schedules and employees need to schedule "training time" to complete training and avoid interruptions which can interfere with learning. Some companies are moving away from their initial expectation that on-line learning can be completed at the employees desktop without time away from the job and instead setting up learning labs for on-line learning to occur without the distractions of the workplace. Chunking or using modules helps trainees learn and retain more than they might in a standard full day or half-day training class. Training can also be more easily integrated into the typical work day. Trainees can more easily devote one-to-two hours to a learning session from their office and then return to their work responsibilities. Using formative evaluation of prototypes of web-training can be helpful in identifying the appropriate length and time of modules. End-users (managers, potential trainees) should be involved in formative evaluation to insure that music, graphics, icons, animation, video and other features facilitate and do not interfere with learning. Also, end-users need to test the content, navigator, or site map to insure that they can easily move through the learning module and access resources and links to other websites as needed.

Incorporate Linking and Sharing. Employees learn by informal unstructured contact with experts and peers. Hyperlinks refer to links that allow a trainee to access other web sites that include printed materials as well as communications links to experts, trainers, and other learners. Owens-Corning's learning resource home page has hyperlinks to all available forms of training information including CD-ROM, web-based, and trainer-led programs (Pollack & Masters, 1997). The site supports on-line course registration and allows tests to be sent to trainees, scored, and used to register trainees in appropriate courses.

Research suggests that one reason employees fail to complete on-line learning and prefer instructor-led face-to-face instruction over on-line learning is that they want to be able to learn from and network with their peers (Zielinski, 2000). Effective on-line learning connects trainees and facilitates interaction and sharing though the use of chat rooms, e-mail, electronic bulletin boards and discussion groups. Other methods for learner interaction and sharing include having trainees participate in collaborative on-line projects and receive tutoring, coaching, and mentoring by experts. On-line learning also should provide a link between the trainees and the "instructor" who can answer questions, provide additional learning resources, and stimulate discussion between trainees on topics such as potential applications of the training content and common learning problems.

Conduct a needs assessment. Needs assessment involves determining the company's resources for training, the tasks to be trained, and analysis of the employees who may need training. When considering web-based training or any type of on-line learning, the needs assessment process should include a technology assessment (as part of the organizational analysis) and an assessment of the users skills needed for on-line training (person analysis).

One personal characteristic that is of paramount concern is differences among people in their experience and comfort with computers. Anxiety and discomfort may lead to decreased interest in these types of training (Williams & Cothrel, 2000). Discomfort with computers may also be related to demographic variables, particularly age. In order to improve equal opportunity, care should be taken to identify and eliminate problems with technology-based learning. On-line tutorials may be needed to acquaint trainees with the capabilities of the e-learning system and how to navigate through the web.

The information technology department needs to be involved in the design of any web-based program to insure that the technology capabilities of the company network are understood to insure that trainees can get access to the browsers and connections they need to participate in e-learning and utilize all of the tools (e.g., e-mail, chat rooms, hyperlinks) that may accompany it. Design with learning in mind. Keep in mind that just because text is on-line doesn't make it an effective way to learn. Repurposing refers to directly translating an instructor-led face-to-face training program online. On-line learning that involves merely repurposing an ineffective training program will still result in ineffective training. Unfortunately, in their haste to develop on-line learning, many companies are repurposing bad training. The best e-learning uses the advantages of the internet in combination with the principles of a good learning environment. Effective on-line learning takes advantage of the web's dynamic nature and ability to use many positive learning features including linking to other training site and content through the use of hyperlinks, providing learner control, and allows the trainee to collaborate with other learners. Effective on-line learning using video, sound, text, and graphics to hold the learners attention. Effective on-line learning provides trainees with meaningful content, relevant examples, and the ability to apply content to work problems and issues. Also, trainees have opportunities to practice and receive feedback through use of problems, exercises, and assignments, and tests.

Match instructional features with available technology. Two technology infrastructure considerations, broadband width and high-speed Internet connections, determine the degree to which sound and video can be used for e-learning, how quickly the user can access training sites, the quality of the interaction between the learner and the trainer, and whether connections between learners or hyperlinks to web sites can be built into the system. Bandwidth refers to the number of bytes and bits (information) that can travel between computers per second. Graphics, photos, animation, and video in courses can be slow to download and "crash" the system. On-line learning courses should be designed taking in mind the available bandwidth on the company's system. Bandwidth can be increased by upgrading access speed on the users computers, buying and installing faster servers and switches (computer hardware) on the company's network, or encouraging trainees to access the web when demand is not high (Schaaf, 1999). Soon bandwidth may not be an issue as computer servers will be able to transfer more data faster, personal computers will have greater processing speed, and cables and wireless communications systems that carry data will have greater capacity. On-line learning should also try to build in interactivity without requiring the use of plug-ins. Plug-ins refer to additional software that needs to be loaded on the computer to listen to sound or watch video. Plug-ins can be expensive because they may require the company to pay licensing fees. Plug-ins also can affect how the computer processes tasks. If trainees experience repeated technology problems such as slow download times, network downtimes, or plug-in problems they will likely lose patience and be reluctant to participate in on-line learning.

Give learner's control. Learner control refers to the ability for trainees to actively learn though self-pacing, exercises, and exploring links to other material and conversations to other trainees and experts. That is, on-line learning allows activities typically led by the instructor (presentation, visuals, slides), trainees (discussion, questions) and group interaction (discussion of application of training content) to be incorporated into training without trainees or the instructor having to be physically present in a training room. Web-training presentation of content, exercises, and practice should be arranged in modules that are designed not to overwhelm the learner. Good web-based training allows the learner to control what parts of the program they will see and to skip modules on topics they are familiar with by passing competency tests.

Provide incentives for program completion. Given the work demands that employees face, trainees need to have incentives to complete online learning. Some companies are using cash awards and merchandise if employees pass on-line competency tests that show they have completed and learned on-line course content. Other companies use certification programs to insure that on-line courses are completed. For example, at Symbol Technologies, a manufacturer of hand-held bar-code scanners and computers, sales trainees must complete on-line courses to be certified as sales persons (Zielinski, 2000). If they don't complete the training they can't continue into other training programs needed to be a successful salesperson. Aventis Pharma AG, a pharmaceutical company, has simply eliminated other training options such as classroom learning. If employees want training their only option is on-line learning.

Evaluate program effectiveness. There should be an assessment of the degree to which the goals of e-learning are met. This may mean looking at department-level or organization-level outcomes, such as improvements in quality or reduction in time spent on projects. E-learning systems can be designed to incorporate assessment tests into instruction, providing an easily accessible measure of knowledge gain, learning, and time to course completion. The bigger question is whether or not the training content is used on the job and if this in turn has organizational impact. Also, it is important to establish that the benefits realized by these new training technologies are recouping development costs (new technology, program design, etc.). For example, Aetna US Health Care is using e-learning over the company's intranet to teach employees how to enroll a customer and settle a medical claim (Khirallah, 2000). Aetna has found that training time per employee has been reduced from one to three weeks from an average of six weeks for traditional classroom training. This has resulted in reduced training costs and enhanced the company's ability to meet customer needs. At BellSouth Cellular Corporation in Atlanta, on-line learning has resulted in getting employees trained quicker than using classroom approaches and uses less training time without a decrease in effectiveness (Schaaf, 1999). New supervisors traditionally enrolled in a basic supervisory skills class after eleven months on the job. The new supervisors are now able to take the on-line training just three weeks into their jobs

Acceptance of e-learning. Although there has been much press regarding the benefits of these technologies, relatively few companies have adopted them (Moran & Allerton, 2000). Employees may find the use of e-learning to be daunting, particularly if they lack computing skills. Furthermore, the Information Systems department of the organizations may not be very enthusiastic about implementing e-learning (Moran & Allerton, 2000). This is a critical issue, because for e-learning to be effective, there must be adequate technical support (Crandall & Wallace, 1998). Ineffective technology, such as malfunctioning programs, can produce a great deal of frustration for trainees, which could result in lower motivation and subsequent poor performance. In addition, since many of these training media are new, learners may view them with suspicion early on. Problems with the technology will only reinforce negative attitudes, and again, motivation to be involved in training using technology may be limited. A major issue here is the factors that lead to successful start-up and acceptance of new learning technologies. Companies may need to begin promoting e-learning through overt acts to get employees acquainted with its uses (Hipwell, 2000).

Action Learning

Action learning is a process on which teams of employees are created and assigned to work on specific, critical customer, production, or service problems for a designated time period. The team typically consists of members from different areas of expertise. The time period can range from six months to a year. During this time, the team is given presentations by senior managers relating to the web and customers. There are also presentations of content knowledge by company experts as well as outside experts (such as consultants, engineers, or academics) and team-building activities. The team is responsible for utilizing whatever resources it needs to create a recommendation by the end of the time period. At the end of the learning and solution generation period, the team presents their solutions and recommendations to senior management, who decides whether or not the solutions should be implemented and what resources the team will receive to implement its plan. Action learning programs benefit the organization in several ways. First, the organization gets implementable solutions to pressing problems. Second, the action learning paradigm facilitates cross-fertilization of ideas and familarizes team members with issues and expertise of other functional areas. Third, team members are required to identify resources and work on problems that may be out of their particular area of expertise. This helps "stretch" the employees' skills so they develop new competencies.

On-the-job Experiences

On-the-job experiences refer to relationships, problems, tasks, or demands that employees face in their jobs. The major assumption is that development is likely to occur when there is a mismatch between the employee's skills and past experiences and the skills required for the job (Noe, 2002). There is substantial evidence that "stretching" job experiences result in learning (e.g., McCauley, Ruderman, Ohlott, & Morrow, 1994). These job experiences include those involving a specific assignment (e.g., fix a failing operation, customize an existing product or service), interpersonal relationship (e.g., get a job completed without having formal authority to influence others), and making transitions (e.g., handle new and unfamiliar responsibilities, make

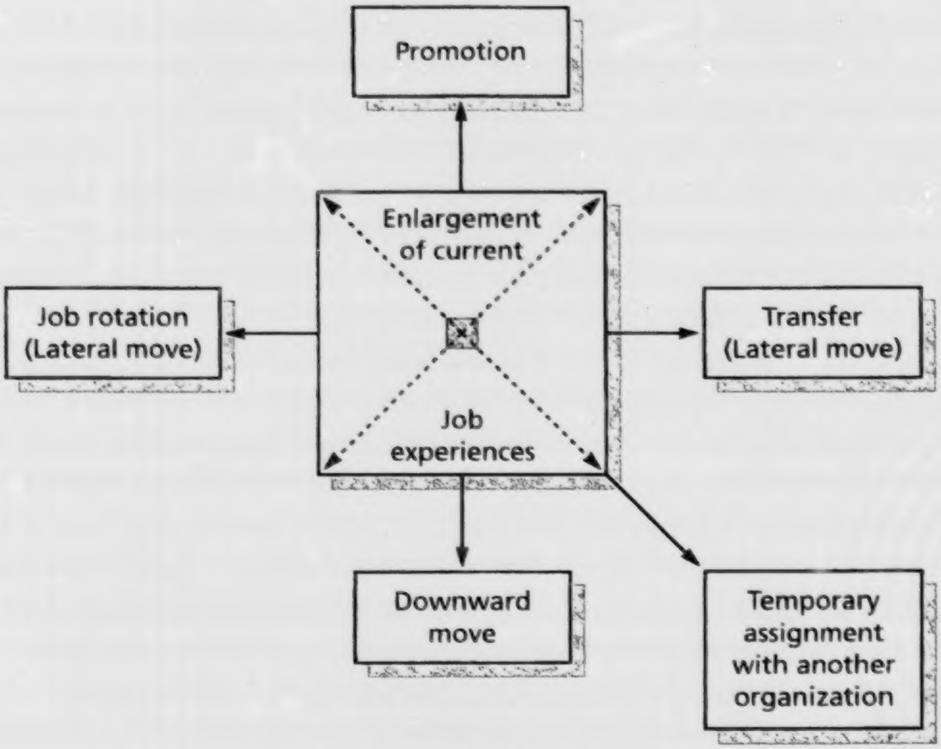
Promotion
Enlargement of current
Job experiences
Job rotation (Lateral move)
Transfer (Lateral move)
Downward move
Temporary assignment with another organization

Figure 3. How job experiences can be used for development.

strategic changes, start a new project). In many organizations, job experiences have systematically been used either for socializing and training new employees (job rotation) or for developing employees with managerial potential. However, the organization can benefit most if job experiences are used to develop all employees, not just a select few. Figure 3 shows the various ways that job experiences can be used for development. These include enlarging the current job, job rotation, transfers, promotions, downward moves, and temporary assignments (committees, work teams, task forces) including relationships both internal and external to the organization. It is important that the knowledge that employees gain from these experiences is captured in the organization's database and shared with others to maximize both the personal and organizational benefits of these experiences.

Relationships

Employees can learn through one-to-one interactions with peers or managers or through interactions with a larger community of peers. Possible relationships that can facilitate learning include coaching and mentoring relationships and participation in a community of practice.

Coaching/interpersonal relationships. Because in virtual organizations, face-to-face interactions with peers, managers, and experts may be limited, mentoring and coaching relationship may be restricted to electronic communications such as via e-mail, telephone, or fax. For virtual coaching to be effective, an initial face-to-face meeting between the parties is necessary to establish trust and the ground rules for the relationship. A development contract should be agreed to by both parties. This contract specifies the purpose of the coaching. Usually, development coaching is not used for evaluation, performance appraisal, or compensation review purposes. It is strictly to help the employee. The contract should specify frequency of contact and any activities that the coach and the employee are responsible for completing, The potential benefits of virtual coaching include (see Hakim, 2000):

1. The ability to contact your coach on an "as-needed" basis.
2. Support for the realities of change.
3. Assistance to build confidence before an important event by checking in with the coach about a meeting agenda, succession plan, or to review a presentation.
4. Improvement of communications in a flexible, "real-time" format (employees in a virtual organization need to be able to clearly state direction using short and long-term plans, share good and bad news, formally pass on resource information, build consensus around common goals, and ask others to commit and share their opinions).
5. Recognition and explanation of personal feelings and get feedback on them.
6. Assistance to convert abstract ideas to concrete goals.

Research on mentoring clearly shows that both the mentor and the protégé benefit from the relationship. The protégé receives psychological support as well as career-related benefits. The mentor has the opportunity to develop leadership skills and contribute to organization goals related to employee development and growth (Noe, 2002; Wilson & Elman, 1990).

Communities of practice. Communities of practice (or communities of learning) refer to groups of employees who work together, learn from each other and develop a common understanding of how to get work accomplished. A community of practice includes formal information that can be found in typical classroom instruction as well as the social interactions that make that information useful in the work environment (Beer, 2000). The learning community provides a context for dealing with workplace problems, involving real relationships in real time. Communities of learning often take the form of discussion boards, list servers, or other forms of computer-mediated communication in which people send electronic messages to and receive them from a group of interested parties. In doing so, each individual's knowledge can be tapped in a relatively quick manner. It is as if employees are having a conversation with a group of experts. For example, Oticon Inc., a Danish hearing aid manufacturer replaced its formal organizational structure with a flexible work environment and project-based work processes (Tetenbaum & Tetenbaum, 2000). Self-directed teams are formed and disband as required by the work. Most of Oticon's 1500 employees work on several projects at one time. At Oticon, the physical work space encourages the development of communities of practice. Oticon workers are given mobile work stations with drawerless desks and networked computers. Their workspace is wherever they choose to park their work station while on a project. Workers are encouraged to network and learn from colleagues. The web is particularly suited for creating or enhancing the informal learning that is already happening in the virtual organization.

Web sites can be developed on company intranets to create communities of practice in virtual organizations. For example, a consulting firm developed a website, called Management University for about 500 managers of a software development group in six locations in the United States and United Kingdom (Newman & Smith, 1999). Management University consists of three sections: a Resource Center, Management Forum, and Executive Perspective. The Resource Center has a virtual library that consists of a prescreened selection of books, articles, and videos, and CD-ROMs on management topics. It includes links to other significant management websites. The resource center also includes a "manager's toolkit." The toolkit consists of searchable cases, topics, and issues. The main topics for this organization included coaching, performance management, consulting and influencing, leadership, team building, innovation, and professional development. The Management Forum is a message board for managers to post questions on difficult management situations and get answers from others who have dealt with similar problems. Managers can search the message board and browse postings by topic. The forum includes success stories (for example, how coaching skills were used for positive results) and management trends for discussion. The Executive Perspective allows senior executives to communicate with their managers.

Despite the benefits of improved communication, communities of practice face several obstacles (Williams & Cothrel, 2000). One drawback is that participation is often voluntary and therefore, some individuals may not share their knowledge. In fact it is likely that those employees who are most effective and most busy are less likely to participate. This is likely to be an issue of organizational culture, in which certain norms may induce participation. Another potential drawback is information overload. Employees may receive so much information that they fail to process it. This may cause them to withdraw from the community and fail to learn more or to contribute to others' knowledge. Finally, as with all technologies, learning communities may be expensive to develop. Additionally, these online communities may require a moderator to clarify, summarize, and organize postings (Williams & Cothrel, 2000), so this may require hiring a new employee.

CAREER MANAGEMENT IN VIRTUAL ORGANIZATIONS

The traditional linear, paternalistic, promotion equals career success perspective has changed (see Callahan & Greenhaus, 1999). Traditionally, jobs were structured to match the ability of workers. Career management was a very paternalistic process. The organization rewarded good performers with promotions, opportunities to move into management, and expended a great deal of effort to help employees identify career goals, map a series of jobs within the organization that would help employees reach their career goals, and send employees to training and other development activities to improve their weaknesses so they could move along their intended career path. In the virtual organization, the individual must have a wide range of competencies that make them adaptable to a wide range of roles. Today, changing market demands for products and services quickly change the demand for different type of competencies. As a result, organizations are likely to be less paternalistic about career development. There is too much uncertainty about future company needs to develop elaborate career maps and direct employees through prescribed development plans.

Should virtual organizations abandon career management? The answer is "no," but the focus of career management is different than under the paternalistic organization model. Table 7 shows the career management practices that can benefit virtual organizations. As Table 7 illustrates, both the employee and company are responsible for career management. For virtual organizations to be adaptable they must obtain knowledge and information that gives them a competitive advantage. To gain this knowledge and information virtual organizations need to create an environment for continuous learning. This can be done by encouraging employees to join professional associations that provide continuing education opportunities and making a direct investment in training and development activities inside and outside the company.

Virtual organizations face a dual-edged sword. They don't want to keep employees whose skills are not needed or are obsolete. But at the same time, in a competitive labor market, they need to be able to attract and retain talented employees. One way to do this is to give employees a way to

Table 7. Career Competencies and Individual and Company Career Management Responsibilities for Virtual Organizations

Individual Responsibilities		*Employees' Career Competencies*		*Company Responsibilities*
Exploration of self and work Setting career goals Using career strategies • Competency • Work involvement • Skill development • Mentors • Play organizational politics Appraisal of career	→	Identity Employability not employment Lifelong learning Maintenance of a technical specialty Increased experience in team and project collaboration Interest in reputation building	←	Give employees opportunities for self-assessment and introspection Help employees balance work and nonwork Ensure career management system is consistent with other HR processes Create a continuous learning environment

identify their talents, interests, and skills. That way, employees can assess whether they are a good fit with the company as well as use the information to seek out job experiences, formal courses, and relationships that can help them attain personal career success. To accomplish this, many organizations either contract out for career services or have an on-site career services center. These centers place less emphasis on movement within the company and place more responsibility on helping employees develop skills and interests that can help them remain employed as well as emphasizing lifelong learning. Another way to ensure that employees maximize their contribution to the organization and remain committed to the organization is to help employees balance work and non-work. One way that companies can do this is through helping employees deal with dependent care issues such as childcare and elder care. Savvy knowledge workers expect companies at a minimum to provide resources to help them identify high quality care. Many companies such as First Tennessee and SAS Institute have made substantial investments in on-site childcare as well as other services (such as concierge services). These companies have found that their investment has paid off in more satisfied and less conflicted employees which translates into lower turnover. Another way to help employees balance work and non-work is through flexible work arrangements such as part-time work, job, sharing, and telecommuting. These arrangements give employees more control over where and when their work is performed. Companies should also legitimatize work-non-work balance. That is, the company culture should de-emphasize that long work hours are a sign of commitment and productivity and instead focus on results. Companies should de-emphasize norms that suggest that working long hours during the week and on weekends is expected. Instead, companies work norms should emphasize working whatever hours employees believe are necessary to reach business goals and objectives. Companies' cultures should also emphasize that the burden for dealing with work/non-work issues is the responsibility of both the company and employee. Finally, virtual companies' cultures should make sure that employees who use programs designed to help maintain a healthy work-non-work advantage are not stigmatized as uncommitted employees, shirking their responsibilities, or perceived as poor performers. Abuses of flexible work rules and arrangements and/or poor performance should not be tolerated.

Virtual organizations have to ensure that their focus on employees being adaptable, developing customer-relevant competencies, and being willing to pursue learning opportunities are integrated with the organizations compensation/reward system, performance management system and the reality of mobility opportunities within the company. If career management, performance management, and mobility systems are not integrated, employees will be dissatisfied and unmotivated to manage their careers due to unmet expectations for job opportunities, lack of knowledge of available opportunities, or performance and/or reward systems being driven by behaviors or competencies that are not developed in the career management system. Company goals related to retention of valuable employees and having a flexible and adaptable work force will not be realized. Both Buckman Labs and Ford Motor Company integrate performance management, career management, and mobility opportunities. Buckman Labs is well known as a prototypical learning organization. Buckman has an on-line learning center from which employees can access training and development activities from anywhere around the world. This includes enrolling in courses, checking out books, taking classes, checking future learning opportunities, or career management. Ford's Personal Development Roadmap (PDR) is a web-based resource that allows marketing, sales and service employees to take control of their personal and professional development. The system helps employees answer three questions: What skills do I have? What skills should I have? And how do I develop my skills? Employees are asked to self-assess their current skills on-line. The PDR then compares the employee's profile to the expected skill level for the employee's job group. After completing the self-assessment the employee identifies the area that they would like development to focus on. The PDR provides developmental recommendations that might include classes and seminars and/or experiences (job assignments and other on-the-job opportunities) to help meet the employees development needs. The PDR also helps the employee create an annual development plan that is related to reaching the development needs. Ford has identified specific leader behaviors such as a drive for results, innovation, and a desire to serve, that all salaried employees need to develop for the company to become a leading marketing, sales, and service company. The PDR focuses on development plans to enhance these behaviors.

FUTURE RESEARCH

Research in the area of virtual organizations is limited, and therefore, there is also a lack of knowledge regarding training and development in such organizations. In this section, we address specific research gaps that, if addressed, will advance knowledge of training and development in virtual organizations related to three broad areas: the employees, the training technology, and the organization.

Employees in virtual organizations need a different set of competencies than workers in other types of organizations, yet this has not been explored. Although we can refer to adaptive performance requirements of jobs (Pulakos et al., 2000), these have yet to be investigated in a virtual organization setting. Additionally, although much of the literature on groups and teams can be applied to situations in which employees are members of virtual teams, there is still little that is known about the competencies necessary for success. Future research should determine the types of individual differences and values of employees that are best suited for work in virtual organizations.

Virtual organizations also emphasize the importance of knowledge work. Knowledge work is often considered to be the most valuable asset to a company in the 21st century. Most of the research on knowledge management has focused on developing methods and tools for knowledge management and how to introduce the knowledge management process into the company (e.g., see Macintosh, Filby, & Kingston, 1999; Milton, Shadbolt, Cottam, & Hammersley, 1999; Dieng, Corby, Giboin, & Ribiere, 1999; Pfeffer & Sutton, 1999). Holtshouse (1998) suggests that if the knowledge management field is to move forward, research is needed in three areas: how to provide the effect of tacit knowledge exchange without employees interacting face-to-face, identifying the critical social, cultural, and technical attributes of a work environment that nurtures and accelerates the expansion of knowledge, and how to measure knowledge so that it's contribution to organizational success can be determined.

A focus on the individual learner is a critical first step in understanding training and development in virtual organizations, but it is also important to empirically assess the new learning technologies that are being used to develop the competencies of these employees. There is growing interest in learning technologies such as web-based training in both the academic and popular press, but very little empirical research (for an exception see Brown, 2001). Findings of previous training research may be relevant, but there needs to be a critical evaluation to determine the degree to which it still applies to today's workplace. For example, although there is a body of research devoted to computer-based training, much of it was done before computers became such an integral part of work and private life. Employee attitudes toward and skills for using computers for training are changing quickly, and these individual differences need to be assessed when examining the effectiveness of learning technologies. There needs to be more systematic investigations of the effectiveness of different learning technologies, particularly in settings of virtual work.

Beyond the individual-level variables that relate to individual performance, research should incorporate contextual influences, such as training climate (e.g., Baldwin, Magjuka, & Loher, 1992; Martocchio, 1992; Quinones, 1995). The climates of virtual organizations are much different from those of traditional organizations, and it is likely that their training climates are too. Training climate has been linked to individual level training outcomes, such as transfer of training (Baldwin & Ford, 1988; Tracey, Tannenbaum, & Kavanaugh, 1995; Warr, Allan, & Birdi, 1999). Therefore, the degree to which the virtual organization environment supports training could be critical to the success of that training. Climate also likely has an important influence on the acceptance and use of knowledge management systems.

Finally, career management in virtual organizations is an area of research that has not yet been adequately addressed. Recent work in the area of the psychological contract can inform researchers about how changes in employer and employee ideas about their reciprocal relationship influences career management. The new psychological contract emphasizes continuous learning and the use of job experiences for career advancement. Therefore, researchers need to focus on understanding the usefulness of such methods to influence employees' careers. Furthermore, there is a need for more understanding of the factors that lead to proactive employee engagement in such activities. Another major issue for virtual organizations is, how can the organization encourage employee loyalty, when they offer little in return (Cooper, 1999). Work in the area of the psychological contract needs to be further developed to more specifically address work in virtual organizations.

CONCLUSION

Training and development in virtual organizations is critical to ensure that employees are adaptable and have the competencies needed to work individually or in teams with members from their organization or vendors, suppliers, or customers. To ensure that virtual organizations are successful, training and development activities have to go beyond formal courses to insure that learning occurs on an as-needed basis. This type of learning involves creating communities of practice and knowledge management systems so that employees can access expertise and knowledge whenever and wherever it is needed. Formal training courses should be disseminated to employees using the web and intranet—training delivery systems that allow a rich learning environment to be created. Virtual organizations also need to consider job experiences as a realistic way to develop employees' competencies while they are working. Although virtual organizations may represent a new type of work arrangements, sound fundamental training practices are still critical (such as the use of the instructional design method including needs assessment, learning environment design, insuring transfer of training, and evaluation) to design a training system. Also, to maximize the benefits of training and development activities for employees and the organization, employees need to develop learning contracts and development plans that outline their strengths and weaknesses and their role, the role of their manager, and the organization, in obtaining training courses, job experiences, and relationships that will help them develop skills and competencies. Research is needed to better understand how employee and organizational characteristics influence knowledge management and the effectiveness of new training technologies.

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CHAPTER 9

PERFORMANCE MANAGEMENT IN THE VIRTUAL WORKPLACE

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ABSTRACT

Performance appraisal and management systems have been analyzed within organizational contexts that typically are relatively stable, hierarchically organized, and homogeneous. With the emergence of technology and virtual organizations (VOs), these conditions are unlikely to exist. Shifting workplace conditions provide an opportunity to reexamine and challenge what we mean by performance management, how it is conducted, and why. In this chapter, we describe common characteristics of emerging virtual workplaces followed by a review of key issues in performance management. The first issue involves the nature and measurement of the performance construct, including the unit of analysis, the unit of time and the content of performance itself. Second, it is critical to consider the goals of the constituents of performance management including the organization, the rater and the ratee. Third, because the environment is changing so rapidly with virtual workplaces, we review the influence of context on goal development and performance management. Finally, we link five distinctive features of VOs (e.g., technology, geographic dispersion, trust, shared information and skills, and speed/flexibility/results orientation) with factors associated with successful performance management and highlight ways in which virtual workplace performance management may either continue in a similar form or change significantly. Because research on virtual teams and organizations is in its infancy, areas of future research are identified.

INTRODUCTION

Virtual workplaces are topics of considerable interest for organizations and employees in the 21st century. Yet, the research on the effects of virtual organizations on human resource practices is in its infancy. Many of the personnel and human resource systems used today, including performance management and appraisal systems, were developed during a time when typical organizations were large and hierarchically organized, when markets and organizational environments were relatively stable, when the workforce was homogeneous and relatively well qualified, and when long term employment was the norm (Murphy & Cleveland, 1995). The context and organization of work are changing in such a way that few of these conditions are likely to exist in the near future. Organizations are becoming more decentralized and flatter. The social, political, and technical environments in which organizations exist are increasingly turbulent, and markets are becoming more volatile. The workforce is no longer homogeneous and is not necessarily well prepared for the complex jobs of today's organizations. In addition, workers are increasingly likely to change jobs, organizations, and even occupations.

All of these changes have implications for the way performance should be assessed, managed, and used in evolving organizations. As wrenching as these changes may seem, however, it is important to keep in mind that they are part of a normal process of evolution in work organizations that has been going on since ancient times. The history of work organizations is a history of change (Wardell, 1992), and the nature of organizations has gone through a number of cycles over the centuries.

The emergence of virtual organizations, teams, and jobs provides the opportunity and the challenge to reexamine what we mean by virtual organizations and performance, how performance is measured, the relative advantages and disadvantages of various performance measures, links with strategic goals of virtual workplaces, and research/practice implications for managing performance within the context of virtual workplaces. In the current chapter, we will discuss both the research and practice implications of virtualness on the management of performance in such work situations. Specifically, we will begin by presenting some background information to orient the reader to the approach that we will be taking throughout the chapter. This will be followed by a brief review of the state of knowledge on features that characterize virtual workplaces. Next, drawing from both the

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team performance literature and the individual performance appraisal literature, we will highlight both necessary individual and contextual features of performance management systems. We will then link the defining characteristics of virtual workplaces with what we know about factors that contribute to effective performance management. Finally, we will conclude by identifying the ways performance management is likely to change or be transformed in virtual organizations as well as identifying ways in which performance management may remain the same.

BACKGROUND AND APPROACH

Snow, Lipnack, and Stamps (1999) use Toffler's (1990) three waves of change to describe the evolution of human civilization. These waves divide all human history into four great ages and collectively reflect a range of human organizational capabilities (Snow et al., 1999). During the Agricultural Age (first wave) beginning 10–12,000 years ago, farming and herding replaced hunting and gathering. With the Industrial Age (second wave), between the 18th and mid-20th century, farms were replaced by factories as the primary mode of organizing and surviving (this was especially true in North America). Although the Industrial Age reflects the current model of organization, the Information Age is growing out of a third, emerging wave of change. With the Information Age, the world of work is more global, information-based, connected electronically and interdependent (Snow et al., 1999). Although it is yet unclear what kind of organization will emerge during the Information Age, virtual workplaces may be part of this new form.

Whatever organizational forms do emerge, we (and others, e.g., Snow et al., 1999) believe that what we know about organizations has accumulated over the ages and that much of what we know now is likely to remain relevant in the future. As one age passes and another emerges, we do not suddenly stop organizing in the previous way. That is, although each new age emerges with its own distinct characteristics, it often incorporates features of the one preceding it (Miles, Snow, Matthews, Miles, & Coleman, 1997). This is the crux of the present chapter. We will draw from we know about performance management, specifically performance appraisal, team performance and performance feedback, and apply this information wherever appropriate to virtual organizations and teams.

We do believe that the emerging workplace of the Information Age incorporates features of their predecessors, including features that are critically relevant for performance management. However, the old features embedded in a virtual context do not persist unchanged. Newer versions of older forms emerge and supplement the variety of organizational forms and practices. Therefore, as virtual workplaces emerge and eventually take on some predictability, it is reasonable to use as a guide our current knowledge of the factors that contribute to successful performance management in organizations today. Yet we must also always examine the limitations of our applications and consider whether virtual organizations, in fact, reflect a new paradigm completely.

WHAT IS A VIRTUAL WORKPLACE?

Many authors have suggested that forms of virtuality in the workplace will grow substantially in the near future. Survey research has estimated that more than 50 million U.S. workers will be telecommuting by the year 2030 (Niles, 1998). Unfortunately, there is both a lack of research and a lack of consensus in the current literature regarding the characteristics of virtual organizations (VOs) and the terminology used to describe them. Much of the current confusion appears to reflect a lack of recognition for the various forms virtual organizations can take. Some authors use a narrow perspective to define a virtual organization (VO) limiting their focus to telecommuting or telework (Breden, 1996; Goranson, 1999) while others focus on temporary, dispersed project teams (Bryne, 1993). We do not wish to restrict the management considerations presented here to a narrow definition of virtual work. Therefore, the section that follows presents the characteristics of and a simple framework for describing a wide range of virtual organizations.

Nearly all VOs are described as geographically dispersed, decentralized, or distributed (i.e., Bultje & van Wijk, 1998, Dai, 1998; Goranson, 1999; Mahford, 1992). This can take the form of home-based workers telecommuting rather than working at a centralized location, as well as the collaboration among members of global work teams. Further, virtual or geographically dispersed teams are generally defined as groups of individuals working across space, time, cultural and/or organizational boundaries who interact primarily through some combination of electronic communication technologies in order to accomplish interdependent tasks guided by a common purpose (Lipnack & Stamps, 1994, 1997; Townsend, DeMarie, & Hendrickson, 1998).

Second, most literature describes VOs as based on the sharing of information and competencies to reach a common goal (also referred to as partial mission overlap, networking, and combining core competencies) (i.e., Bultje & van Wijk, 1998; Goranson, 1999). Advances in information technology have been a key factor in the spread of virtual work. Dispersed workers rely on technology, such as phones, computers, teleconferencing equipment, and email in order to network and share information with other members of their project team and/or central job-site. For example, networking information allows workers to download files at a home office (e.g., telecommuting). Relatedly, important characteristics of virtual teams include their project-dependent nature, potential fluid team membership, flexibility in handling changing task demands, infrequency of face-to-face meetings, and computer-mediated communication (Kristof, Brown, Sims, & Smith, 1995). In global virtual teams, members physically remain on different continents and countries (e.g., Jarvenpaa, Knoll, & Leidner, 1998; Maznevski & Chudoba, 2000), but member affiliations may cut simultaneously across functions and organizations in other types of geographically dispersed teams.

Since virtual organizations rely on shared information and are geographically dispersed, the following characteristics are commonly mentioned as crucial to their success: trust, shared loyalty, and shared identity (Bultje & VanWijk, 1998). The sharing of information, distributed nature of work, and often semi-stable relations within VOs require that a high level of trust and loyalty develop quickly. Kostner (1994) suggests that creating a shared identity among virtual team members helps align the members' goals and processes. Such alignment in goals/processes may lead to a sense of unity or identity and build trust among members. The above characteristics typify different forms of VOs to varying degrees. For example, semi-stable relations do not describe large organizations employing telecommuters as much as it might characterize temporary global teams.

Framework for Describing Virtual Work

One framework for organizing these characteristics has been offered by Jagers, Jansen, and Steenbakkers (1998). They contend that VOs are network organizations, and can be described by their position on a continuum created by axes of control and uncertainty. *Control* is defined as a central regulator. Organizations with a central office that operate through the communication and cooperation of branch companies or subcontractors, possess more obvious control, because a large centralized department or function determines what work will be done and how. On the other hand, members of global virtual workplaces often share control across geographic borders and organizations. *Uncertainty* can be described as the amount of risk participants run when entering into relationships within network organizations. Clear and unambiguous contracts typically bind contractor and subcontract companies thereby decreasing the amount of uncertainty or risk. On the other hand, VOs are often held together, not by central control, but by the sharing of information. Similarly, VOs thrive by innovatively meeting consumer demands. The opportunistic, flexible relationships that result are typified by high risk and uncertainty.

While Jagers et al. (1998) present a useful framework to describe virtual organizations, the control-risk framework can incorporate current organizational forms. For example, organizations today are in a state of evolution reflecting a shift from more central control and low/moderate risk to shared control with greater risk. Therefore, performance management and appraisals within changing organizational types need to transform in order to meet new considerations as one moves further along the progressive steps of the continuum. However, there continues to be a need to draw from the cumulative knowledge base regarding methods of HR systems in the previous type of organization (Snow et al., 1999).

As you will note in the sections that follow, much of the current research based on traditional organizations will be used to inform the management considerations of the various types of virtual organizations. Take, for example, telecommuters employed in a large organization. Although there are a number of new managerial considerations for these teleworkers, such as appraising performance on outcomes versus process (Mahford, 1992), these workers are still monitored by managers and much of the research from managing traditional employees applies. In contrast, temporary global teams represent the further end of the continuum, characterized by low control (leaderless) and high uncertainty (flexible membership and temporary lifespan). In temporary global work teams, sometimes called leaderless teams, there are a greater number of managerial considerations including cultural variations, few face-to-face interactions, and little information on the actual work or culture/country context of team members. As we move along the continuum (i.e., toward lower control and greater uncertainty), there is increasingly less research from which to draw, and the need for further research grows.

The focus of this chapter is on performance management in a virtual workplace. In order to lay out the issues that are likely to be important, it is useful to start with a description of the key issues in both individual and team performance. Although a virtual team does not necessarily have to be embedded in a virtual organization (Kristof et al., 1995), virtual teams are considered a basic building block of virtual organizations (Jarvenpaa & Shaw, 1999). Because of the prevalence of flat organizational structures, changes in workers' expectations of organizational participation, and environments that require interorganizational and global cooperation, many organizations have been experimenting with virtual teams in recent years (Lipnack & Stamps, 1994, 1997; Mohrman, 1999; Townsend et al., 1998). Therefore, it is useful to draw from this literature.

CONSIDERATIONS IN SUCCESSFUL PERFORMANCE MANAGEMENT (PM)

According to Noe, Hollenbeck, Gerhart, and Wright (2000), performance management (PM) involves at least three key components: the actual measurement or assessment of performance, the communication of performance information to the appropriate constituents (e.g., feedback), and the link between the goals of the performance system and strategic goals of the group and the organization. Others have defined performance management or evaluation as "the process by which an organization measures and evaluates an individual employee's behavior and accomplishments for a finite time period" (DeVries, Morrison, Shullman, & Gerlach, 1986, p. 2). We believe that performance management and performance appraisal are viewed as part of a larger organizational system that is used for both corporate planning as well as administrative and development decisions. In this section of the paper, we draw from the current literature on individual and team-based appraisals to identify key features of successful performance management programs. In the following section, we link the dominant emerging features of virtual organizations (and teams) with what we know about the successful management of performance in organizations.

Performance Measurement and Appraisal in Organizations

The most widely used methods to assess individual performance are subjective or judgmental ratings of performance. However, historically and currently in some jobs, other measures of performance are used, including objective performance data and personnel or HR data. These performance data may be quite relevant in VOs. The choice of performance measures is, in part, a function of how we choose to define the domain of performance. Therefore, it is important to begin our discussion of performance measurement by describing how the domain of performance can be defined. Next, given the richness of the performance domain, we will briefly describe three categories of individual performance measures and the strengths/limitations of each.

What is performance? One of the most critical problems in Human Resource Management refers to the question: What is performance? There are at least three important issues to consider regarding the construct of performance: namely the unit of analysis, the unit of time, and the content of the performance domain.

The importance of the unit of analysis has significant implications for what we actually measure and the limits of our measures. Are we interested primarily in individual-level performance as reflected in individual behaviors indicating interpersonal skills or technical competence, team- or group-level performance or organizational-level performance in terms of effectiveness or productivity? As with individuals, the performance measurement of teams involves considering the purpose of measurement, stimulus design, source(s) of information, measurement format, psychometric properties, and rater bias. However, as we will detail below, team measurement also presents unique unit of analysis challenges. According to Johnston, Smith-Jentsch, and Cannon-Bowers (1997), decisions regarding whether variables should be measured at the team versus the individual level should be partly based on whether the task is the primary responsibility of an individual or shared by multiple team members. Whereas team-based measurement may overlook social loafers and provide little direct information about the quality of individual performance (Cannon-Bowers & Salas, 1997; Heneman & von Hippel, 1995), individually-based measurement does not properly account for the interdependent and synergistic nature of team tasks. Therefore, researchers advocate that both individual and team behaviors be tapped (Cannon-Bowers & Salas, 1997; Johnston et al., 1997), which may significantly increase the size of the measurement task.

Unit of analysis issues may be especially complex when evaluating performance in virtual teams. The traditional literature on work team performance has focused heavily on relationships among team members (e.g., cohesion vs. conflict). The performance of the team is assumed to be a function of the effectiveness of each individual member and the relationships among members. In virtual teams, relationship issues are still important, but the nature and intensity of the relationships, as well as the arguments for evaluating team performance, are likely to be quite different than in teams that interact regularly on a face-to-face basis.

Second, linked to the unit of analysis, time considerations are also critical. Unit of time considerations involve the length of time that is appropriate to obtain sufficiently reliable and valid performance information. Often longer units of time are necessary if the goal is to collect team and organizational performance information due to the complex cognitive and behavioral responses required from multiple individuals working simultaneously on dynamic tasks with rapid interaction demands. Measurements taken at one time in a team's life may not be representative of how they work together at another point. Careful attention must be given to the rates at which teams mature and the appropriate times at which to capture team performance.

In VOs and virtual teams, there may be emerging unit of time conflicts. On the one hand, with strong product and customer orientation, there is an urgency to include speed assessments as part of individual or team performance. Therefore, the unit of time to collect such objective performance information may be short in duration. On the other hand, because of geographic dispersion and infrequent face to face interactions, longer units of time may be needed to observe, gather and collect performance information on the effectiveness of individual and team-level behaviors and processes.

Finally, in addition to the unit of analysis and time issues, the appropriate balance of process versus outcome measures of performance must also be determined. Until recently, evaluations of performance have focused largely on task performance or required activities in the job. However, contextual performance or citizenship behaviors have emerged as an important part of the domain of performance that is considered necessary for success in numerous jobs, particularly those jobs where one's responsibilities link closely with other employees. Content issues regarding what should be measured also contribute to the complexity of team measurement. Both taskwork and teamwork have been identified as key dimensions of team performance (e.g., Glickman, Zimmer, Montero, Guerette, Campbell, Morgan, & Salas, 1987). Whereas taskwork involves the behaviors necessary for completion of work-related activities and interaction with tools, machines, and systems, teamwork describes the behaviors necessary to work as a collective entity, such as interpersonal exchanges, cooperation and communication (Morgan et al., 1986). Teamwork measures assume increased importance for highly interdependent tasks (Tesluk, Mathieu, Zaccaro, & Marks, 1997). In addition to teamwork and taskwork behaviors, however, a complete understanding of team performance requires cognitive and attitudinal measures (Baker & Salas, 1997).

Outcomes measures are essential for assessing goal accomplishment and determining which processes are associated with successful performance. However, the results or outcomes often contain variance attributable to factors outside the control of the individual or group (Zigon, 1995) and do not aid in diagnosing specific performance deficiencies (Johnston et al., 1997). In contrast, process measures can provide constructive feedback and facilitate remediation because they focus on teamwork and behaviors such as coordination and communication (Cannon-Bowers & Salas, 1997). Process measures are highly recommended when the purpose of measurement is training (Cannon-Bowers & Salas, 1997; Johnston et al., 1997). On the negative side, however, process measures can be difficult to measure in terms of time, expense, and reliability of judges (Brannick & Prince, 1997). Cannon-Bowers and Salas (1997) propose that a comprehensive measure of team performance include both process and outcome measures.

How do we assess performance? Both the team and individual performance literature suggest a number of types of measures that can be collected as part of a performance management framework. Historically for individuals, performance data can be categorized into two groups: judgmental or subjective measures and non-judgmental or objective measures

(Landy & Farr, 1983). Objective (e.g., production output, scrap rates, time to project completion) and subjective measures (e.g., supervisory rating, 360 degree feedback) each have their own benefits and limitations as performance management measures. Objective performance measures have been useful indicators of performance for routine, manual jobs and have received renewed attention as potential indicators of the general health of the organization (e.g., absenteeism, turnover, grievances and accidents). However, specific objective measures are not without their unique problems. For example, absence measures (1) do not apply to many jobs, (2) are frequently inaccurate, (3) have a variety of causes depending on the definition of absence, (4) vary in length of observation and more important (5) do not tend to correlate with each other. Grievances are limited in scope and generalizability because often they are not available on non union employees. The major problem with the use of accidents as performance indicators is that there is confusion about whether they are the results of people, technology or the work situation, which calls into question the validity of the measure. Finally, rate of advancement or salary increases are poor criteria, because rate may be controlled by a quota, or salary adjustments may reflect organizational health (or the general economy) but not necessarily individual performance.

Well-known problems with objective or results-oriented assessment techniques may help explain the widespread use of more subjective or judgmental measures of performance. First, an exclusive emphasis on results is likely to lead to behaviors that are dysfunctional for the organization. Landy and Farr (1983) note that if performance is defined solely in terms of countable outcomes (i.e., results), incumbents will be strongly motivated to maximize outcomes at the expense of other activities that are vital to the organization. Second, results are more complexly determined than behaviors, in that results are a joint function of what the person does and the situation in which he or she does it. A final point is that results-oriented criteria can lead supervisors and subordinates to ignore a wide range of behaviors (e.g., maintaining good interpersonal relations) that are critical to the survival and effectiveness of the organization but are not uniquely tied to any given product or results. Although the results of behaviors are extremely important in evaluating those behaviors, many HR practitioners and Industrial and Organizational psychologists believe that the domain of performance may be best defined as a domain of behaviors rather than as a set of outcomes.

Subjective measures are the most widely used measures of individual performance, but these are not without their own limitations as well. There are a number of ways to assess the goodness of these measures, including their accuracy and psychometric properties (halo, leniency, central tendency), job relevance, usefulness in decision making, acceptance by job incumbent, and the extent to which they reflect behavior under the control of the employee. In general, research on subjective measures, such as traditional performance appraisals, suggests that these methods provide valuable measures of employee behaviors, but that they probably reflect factors other than individual performance (e.g., rater biases).

Performance measurement is difficult for individuals working independently, but the study of *team* performance presents an added set of challenges to be addressed. Because team tasks in today's organizations are often characterized by rapid interaction demands and moment to moment changes in the situation, team performance measures must reflect the high degree of complexity inherent in collective contexts (Cannon-Bowers & Salas, 1997). Given the importance of high team functioning, the little attention that has been paid to developing better criterion measures is surprising. Nevertheless, illustrations do exist. For example, Komaki (1997) developed a measure of effectiveness for theater teams that included both processes and outcomes, utilized multiple constituencies (director, designers, production crew), was reliably observed, and under the control of the team. While useful, this system has not been widely adopted. According to Cannon-Bowers and Salas (1997), team performance measures should describe behavior accurately, evaluate performance in relation to some standard, and diagnose the causes of effective and ineffective performance. Because teams do not operate in a vacuum, measures should be linked to existing organizational objectives (Zigon, 1995). However, caution should be taken to ensure that team effectiveness measures focus only on behaviors under the control of the team and are minimally affected by extraneous factors (Komaki, 1997; Zigon, 1995). In addition, because what occurs at one time in the team's life may not represent future activity, measures must be dynamic and reflect the maturation process of a team (Baker & Salas, 1997).

Performance Management and Strategic Goals: Organizational, Rater, and Ratee Goals

The goals of the organization and how they are translated into team and individual performance objectives and goals have implications for the form, structure, and success of the PM system. Yet, potentially conflicting organizational trends for the goals of performance management have emerged. Within the management literature, there has been a strong orientation toward *strategic* human resource systems including a strong strategic emphasis for performance management systems (or as it is termed in the applied psychology literature, performance appraisal and feedback). That is, the organization has strategic market and productivity goals and

HR systems including selection, performance appraisal, and training programs are designed to be consistent with these organizational objectives. This literature assumes that such personnel systems are explicitly designed with the intention of communicating to employees the organization's goals and the importance of achieving these goals. Implicitly, this strategic HR approach suggests top down communication (and control) of the goals from upper management to employees for managing work behavior.

On the other hand, emerging literature that takes the employee's perspective (Rousseau, 1996) suggests that increasingly skilled workers are managing their own careers and seeking/finding the most positive work opportunities especially within the information technology area. That is, employees with information technology expertise are in high demand and very low supply such that they can ostensibly write their own job ticket. This trend suggests an alternative role for performance management (perhaps goals that move from "bottom upward"), namely to motivate and reward employees, especially those that possess skills and expertise that are critical to the perceived success of the organization.

Finally, it is important to keep in mind that there are numerous constituents of performance management information; namely the organization, the rater and the ratee. The goals that each constituent pursues are important to identify, as they provide the context within which the PM system will be a success or a significant failure.

Organizational goals. Although commonly criticized by practitioners and managers, most organizations have some form of appraisal system, often because there are simply few other performance evaluation options. There is fairly consistent research evidence that organizations have two dominant objectives for performance management systems. First, information from performance evaluation plays an important role in administrative decisions. Between-person or administrative uses include performance appraisals for promotion decisions, salary increases retention/termination, recognition of individual performance, and identification of poor performers. A second frequently cited goal for a performance management system is to provide performance feedback to the employee. Cleveland, Murphy, and Williams (1989) called these within person uses and cited as examples the identification of individual training needs, performance feedback, determining transfers and assignments (often of developmental nature), and identifying individual strengths and weaknesses. Although performance information is also used by the organization to document and maintain various organizational systems (i.e., manpower planning, evaluating goal achievement, or identify organizational training needs), both administrative decision making and performance feedback continue to be the two most important and frequent uses of appraisal systems. Further, from past surveys, it is clear that organizations use such information for multiple goals despite the fact that a given performance management system may not effectively address all of these uses or goals equally well (Cleveland et al., 1989; DeVries et al., 1986).

Conflicts between the goals of raters, ratees, and organizations can be a significant roadblock to the success of performance management systems. These conflicts might be especially common in virtual organizations, where the links between the organization and its (virtual) members might be especially tenuous. It is therefore useful to pay careful attention to the goals pursued by raters and ratees in virtual organizations.

Rater goals. Recent models of performance appraisal (e.g., Murphy & Cleveland, 1995) have focused on the goals pursued by each of the stakeholders in performance appraisal with considerable attention to the way that goals are shaped by a variety of context factors. Murphy and Cleveland (1995) suggest that the most frequently pursued rater goals can be identified with one of four general categories: (a) task or performance goals; (b) interpersonal goals; (c) strategic goals; and (d) internalized goals. The types of goals that are most influential may depend on the relationships among raters, ratees, their organization, and perhaps on the objective performance of the ratee. For example, leadership theories suggest that supervisors do not treat all employees the same. Specifically, Leader-Member Exchange (LMX) theory suggestions that each supervisor-subordinate dyad may involve a somewhat different style of interaction reflecting dyads of high quality (e.g., in-group) and dyads of lesser leader-employee quality (out-group). Although the terms in-group and out-group are not synonymous with good performer and poor performer, research on in- vs. out-group status may be useful in understanding the goals that raters are likely have when evaluating employees who perform well or poorly.

It is our contention that raters pursue different goals when evaluating superior performers, average and poor performers (Murphy, Cleveland, Kinney, & Skattebo, 2000) and that these goals contribute to whether the performance management system is effective. For high performers or employees that the supervisor values and wants to retain, the manager may try to communicate to the ratee and the organization that this individual's performance IS, in fact, better than that of others who have also received positive evaluations (inflated ratings are the norm in many organizations.) This might be done by developing a special phrase or key words to accompany a numerical rating. This reflects a task goal. Further, the rater may attempt to accomplish a more interpersonal goal by providing performance feedback that readies the employee for promotion or for a more complex assignment. Here, the manager may utilize the evaluation system to serve more as a mentor than as a judge to the employee.

Good performers are likely to be members of the manager's in-group, and therefore, may interact more with the manager and receive more information and attention which allows them to do their jobs well. Average performers likely do not receive as much attention from supervisors. However, some average performers may make their way into the in-group through their trustworthiness and responsibility. The manager's goal may be to improve the employee's task performance and bring it up to the level of other in-group members. For poor performance, research on rater or managerial reactions is extensive. Managers prefer to avoid dealing with the problem of poor performance. These employees are likely to be members of the leader's out-group and receive limited interaction or information directly from the leader. There is little effort to actually improve employee performance and uncomfortable interpersonal interactions are avoided by giving relatively high ratings, accompanied by vague and noncommittal comments. Feedback is likely to be nonspecific.

A significant portion of the research on leadership and performance appraisal deals with the implications of the quality of the relationships in supervisor-subordinate dyads. It is not clear whether this research will generalize to virtual dyads, but it is reasonable to assume that leaders of virtual teams will face many of the same challenges as leaders of traditional teams, and that they will follow similar strategies to meet these challenges. For example, the leader of a virtual team will probably place more trust and reliance on some team members than on others, and may give substantially different performance appraisals and feedback to members of this virtual in-group than to members who are seen as more peripheral to the team.

Ratee goals. Little research has focused on the goals that ratees are likely to pursue in the performance appraisal and management context. Yet, recent feedback research (Waldman & Atwater, 1998) suggests that ratees or employees do indeed vary in terms of the goals they want to pursue. Namely, some ratees simply want to know "how am I doing?" However, the goals of the ratee may mirror the two-way nature of the communication process. Ratee goals are likely to revolve around both obtaining information from the rater about his or her performance and conveying information to the rater about one's own performance. The extent to which an employee's goals reflects the receiving or giving portion of the communication process may depend, in part, on a number of factors including the performance level of the employee, the extent to which the evaluator controls valued rewards, the extent to which the employee has the opportunity to interact with the evaluator and so forth. Both types of goals are likely to have the potential to influence the ratings that the supervisor actually records.

For example, the feedback literature suggests that there are three distinct ways in which the ratee's goals for obtaining information might affect the appraisal process. First, ratees may actively seek feedback, specifically about their relative standing in the work group. Second, ratees often use the appraisal information as a guide to direct future performance efforts.

They may seek and be most receptive to information relevant to their future development rather than their past performance. Finally, the performance evaluation process provides an opportunity to acquire information on performance standards and organizational expectations of good or successful performance. Ratees may use the appraisal and feedback process to seek information about the norms and standards of the organization.

All three of these ratee goals for appraisal (i.e., find out how I am doing, how to do better, and what constitutes good performance) can have an effect on the rater and his/her subsequent evaluations. For example, if the rater perceives the employee as expecting strong rewards and positive feedback, the rater may temper or adjust negative ratings in order to avoid an uncomfortable exchange. Further, if the employee is new, the rater may feel more comfortable giving less lenient ratings and providing developmental feedback about the employee's strengths and weaknesses in comparison to performance standards and organizational standards (Cleveland & Murphy, 1992). Virtual teams will sometimes be short-lived, which means that ratees might often be highly concerned with communicating their accomplishments and success to their managers (in part, because they will have few opportunities to do so face-to-face). In a virtual organization, ratee goals may, therefore, tend to emphasize building and maintaining a two-way flow of information about their performance.

Contextual Factors that Affect Effective Performance Measurement (Goal Development)

A number of previous reviews, models, and studies of performance appraisal have acknowledged the importance of the situation or context within which appraisals are conducted. Cleveland and Murphy (1992) suggest that goals serve as mediating variables in the relationship between context and appraisal behavior and effectiveness. That is, contextual factors have a strong influence on the goals developed by raters, ratees and the organization in the appraisal process, and thus indirectly influence the way in which appraisals are carried out, interpreted and used. How does context shape the development of goals? Organizations and the workplace at large (the economy, society) make formal and informal efforts to socialize their members, and one aspect of being socialized is to learn the appropriate behaviors, strategies and uses of performance management. That is, not only do individuals and organizations learn how performance management should best be practiced, but also the larger work-related context (e.g., the economy, the marketplace, the changing nature of jobs, technology, generational values) actively exerts influence on shaping the goals that the users of performance management systems develop.

This socialization process is most frequently discussed at the individual level. However, it can be applied to the organization as well in terms of how the organization becomes socialized in the effective use of appraisals, especially in relation to emerging changes in the way work is performed. In some respects, socialization at the individual level parallels the life-stage cycle of an organization.

In general, context factors that affect performance management can be conceptualized as either proximal or distal (Brunswik, 1955; Cleveland & Hollmann, 1991). Roughly, proximal variables directly impinge upon or influence the rater, the ratee, and the organization. Proximal variables thought to influence performance appraisal outcomes include individual performance level (poor vs. good performance), appraisal system features, (e.g., scale type, item format, training), rater acquaintance and affect, purpose, opportunity to observe the ratee, perceived trust, perceived rewards and punishment, group leader and task characteristics, and group norms.

There is evidence that suggests that these proximal variables influence the outcomes of ratings. For example, groups or teams help define the context in which ratings are collected and interpreted by influencing the knowledge and skills of individuals, the level of psychological arousal while working, and the member's effort and performance strategies. Further, norms develop within the team regarding acceptable levels of performance. In addition to norms of productivity, norms develop regarding the role of performance management within the team and organization. For some groups, a norm develops that may lead raters to believe that high or inflated ratings are the only acceptable ratings. It can often be unacceptable for a rater to record ratings that depict average or below average performance, even when such ratings are accurate. For example, based on information from rater interviews, when entrance standards for admission to a group are high, individuals in that group are often perceived as all very high performers (Cleveland, Morrison, & Bjerke, 1986). Performance variability of the group and the salience of a given team member can also influence rating outcomes. Raters do not evaluate one person on a single occasion; rather, evaluation occurs for many people over an extended time or covering many tasks. Therefore, in many contexts, there is the opportunity for other team members to influence ratings by providing raters with information that leads them to focus on comparative rather than absolute judgments (Ilgen & Feldman, 1983).

The rater and the organization are active participants in the performance appraisal and management process. Raters are motivated by the context and the goals they want to achieve. There is consistent evidence that raters inflate evaluations in order to avoid negative or uncomfortable feedback sessions and to avoid negative consequences or actions for the ratees (i.e., a poor appraisal in the employee's permanent files). Further, ratings are most frequently inflated in order to obtain rewards for employees (e.g., maximize merit increases).

Level of rater trust or perceived threat by the participants in the management process affects the effectiveness of the system. Trust and threat appear to influence both the psychometric quality of rating outcomes and the acceptance of the appraisal system. Organizational climates characterized by low trust, either between raters or across organizational levels, can lower the effectiveness of an appraisal system (Lawler, 1972). Trust is a particularly crucial factor for members of a virtual workplace.

Distal context cues are those intra- and extra-organizational characteristics that may influence judgments, rating and assessment indirectly. Their effects are not only indirect, but frequently also implicit. That is, employees and raters may not be aware that these variables play a role in the judgments and decisions that they make. Distal context variables include organizational life cycle and structure, organizational goals, climate, culture, values, the status of the specific function or unit, and external educational and legal entrance standards to a functional unit or job type (Murphy & Cleveland, 1995). Examples of distal variables external to the organization include the state of the economy, the financial condition of the organization in comparison to competitors, and the legal climate.

There is evidence to support the effects of distal context factors on evaluation outcomes. Organizational values that define which jobs or job areas are important are often reflected in ratings (Cleveland et al., 1986). Specifically, employees whose jobs or activities are perceived as more closely linked with the organization's mission or purpose are rated systematically higher than employees in jobs that are perceived as less central to the organizational mission. The impact of the economic environment, technological environment (Barley, 1986) and the physical work environment (Peters, Fisher, & O'Connor, 1982) on appraisal outcomes also has been documented. Both the technological environment and the physical work environment are likely to be different in a VO than in a traditional organization. Murphy and Cleveland (1995) suggest that these differences will have some impact on performance appraisal systems and on the goals pursued by raters and ratees, but to date, there has not been enough relevant research to support specific predictions about the direction or strength of these effects. Finally, organizations high in complexity and coordination are more likely to use appraisal for purposes such as feedback, identifying strengths and weaknesses in employees, and systems maintenance than other organizations (Cleveland et al., 1989).

Linking Characteristics of Virtual Workplaces with Performance Management

There are key features of VOs that we have discussed that may significantly transform the way individual, team and organizational performance is managed in the virtual workplace. As noted earlier in the chapter, there are a number of characteristics that are emerging as common across VOs including (1) technology; (2) geographically dispersed individuals/teams; (3) heavy reliance on trust (4) shared information, skills and roles, and (5) speed, flexibility and customer result-orientation. We will discuss these five distinctive features of VOs and link them with the PM factors we have presented in order to highlight ways in which PM may remain either the same or change significantly when moving from traditional organizations to VOs.

Technology and VOs. The foundations of virtual work rests on technology. With it, global communication among teams and organizations is not only a possibility but a reality. Organizations are incorporating technology within their organizations quickly and often without regard to its impact on the existing organizational mission, structures, HR systems, or upon its organizational members. One of the challenges organizations face is how to incorporate emerging technology with the organization's mission and market. With the emphasis on speed and change, organizations must scramble to identify and select technologically skilled employees. Further, technologically skilled individuals may be more inclined initially to test their entrepreneurial skills rather than join an existing organization. Therefore, organizations that increasingly require information technology will find themselves competing for a scarce number of skilled workers.

The high demand for technologically skilled employees (a distal context variable) has implications for the goals associated with performance management in virtual organizations. Historically, performance management has been used for gathering employee information for administrative uses such as salary increases, promotion decisions, or the identification of poor performers. However, within virtual teams and organizations, performance information may be used more for developmental purposes tailored to reward highly skilled employees rather than for administrative uses. Therefore, performance management systems may be structured such that the attraction, selection, and development of technologically skilled employees are the goals rather than the direct management of individual job performance. Administrative goals of PM may take a secondary role in virtual organizations because, initially, organizations may be more focused on getting and retaining workers with a unique set of scarce resources.

Changes in technology can have a substantial impact on rater-ratee interactions and influence the goals that raters have concerning performance management. This is due, in part, to incidental changes in the organization of work that accompany a new technology. For example, as technology becomes increasingly complex, the span of control of first-line supervisors tends to increase (Woodward, 1965). Thus, the addition of new technology may increase the number of persons a supervisor is asked to evaluate. An increased span of control also implies that the supervisor (a) has less time to observe each worker's performance, (b) must spend more time conducting performance appraisals, and (c) has a larger comparison group available for evaluating each worker's performance (Murphy & Cleveland, 1995). The first two factors may lead to lower levels of rating accuracy; the last factor may lead to increased levels of accuracy. If the workplace is virtual, so that workers have little face-to-face contact with their supervisors, this relationship may become less important than in more traditional supervisor-employee relationships or take a different form. There are few constraints on workers in virtual organizations (e.g., fewer co-workers, less direct interactions) which may make the motivational uses of PA more practical and effective.

A second example of the indirect effects of technology on performance management also involves changes in supervisor-subordinate relations (Barley, 1986). When the technology becomes complex, the workers who use that technology may become more expert in their jobs than their supervisors (Fry, 1982). In the extreme case, the supervisor who cannot operate the current technology could become completely dependent on his or her subordinates. This change in relationship is likely to have several effects on performance management in VOs. First, the frequency of appraisal may go down if the supervisor does not feel able to sensibly evaluate subordinates' performance. Second, workers may not accept appraisals from a supervisor who does not understand precisely what they do. One basis for the supervisor's power is usually his or her presumed expertise (French & Raven, 1959); therefore, the supervisor who does not understand the technology no longer has expert power.

Third, in a related point, the supervisor may lose position power as a result of the introduction of new technologies. Within the virtual organization, new technologies may change the nature of work in such a way that the supervisor becomes superfluous. A loss in position power will probably also lead to lower levels of acceptance of performance appraisals by employees for top-down administrative uses.

Finally, because employees in virtual organizations may not interact frequently face to face with their rater/supervisor, ratee goals are likely to center on communicating to the rater what the ratee has accomplished. Formal feedback will be more important because ratees do not get much informal feedback from their supervisors or coworkers.

Geographic dispersion. With virtual organizations and teams, advances in telecommunications have made it easier for employees to work at home or in geographically dispersed locations rather than going to the workplace. Geographic dispersion is a second defining feature of virtual work, and this feature has a number of implications for PM. It is possible that a supervisor will never see or even meet some of his or her subordinates. The performance of a geographically dispersed individual can hardly be assessed in behavioral terms based on consistent, direct observation. In this case, PA might depend largely on a count of products, reports, or other results achieved. Furthermore, in evaluating the performance of a worker who is off-site, the supervisor might be bypassed entirely, and performance counts may be recorded through the same technological medium that the worker uses to submit the results of his or her work. Therefore initially, the performance of workers will likely be based more on outcome measures such as speed of response to customers, meeting deadlines, product completion and so forth. Unfortunately, there are numerous limitations to these types of performance measures as discussed previously.

According to Cascio (1999, 2000), the major disadvantage of virtual teams is the lack of face-to-face interaction, which depersonalizes communication. Cramton (2001) empirically investigated the problems associated with geographic dispersion by examining the e-mail exchange and written products of 13 geographically dispersed teams of graduate students. Her qualitative analysis revealed that the most common problems experienced by teams were technical problems, difficulty in interpreting the meaning of silence, and uneven exchange of information. Even when the cause of difficulties was due to situational factors (e.g., technical issues), members often made dispositional attributions (e.g., intentional non-participation), eroding trust and cohesion in the group. Although damaging to relationships, these problems were not found to directly impact team performance.

Cramton (2001) noted the difficulty of maintaining mutual knowledge or common ground in geographically dispersed collaboration. She found that virtual teams often failed to recognize differences in the locations and local contexts of dispersed collaborators and, as a result, neglected to communicate important information about their own context and constraints to remote partners. In addition, the absence of face-to-face communication made it difficult to emphasize the salience/importance of information and interpret the meaning of silence (Cramton, 2001).

Maznevski and Chudoba (2000) examined three global virtual teams over 21 months (based on qualitative analyses of interviews, observations of meetings, communication logs, and company documentation) and concluded that face-to-face meetings are essential to effective global virtual team functioning when the task is highly interdependent and there is significant geographic, organizational, and/or cultural dispersion. Specifically, regular face-to-face meetings were instrumental in setting the temporal rhythm for the virtual teams they observed, which were then followed by less intensive computer-mediated communication (Maznevski & Chudoba, 2000).

Depersonalized interactions may also lead to inappropriate interpersonal behavior, greater affective and task conflict, and the lack of feedback necessary to quickly identify miscommunication (Hinds & Baily, 2000). Other problems experienced by virtual teams may include information overload, alienation, stress resulting from multiple team assignments, and start-up problems due to organizational restructuring (DeSanctis & Monge, 1999; Townsend et al., 1998). Although technology provides the mechanism that allows geographically dispersed teams to exist, it offers no easy solutions for the problems caused by the virtual context (Hinds & Bailey, 2000).

As this research illustrates, integrating mechanisms are especially critical when teams rely on virtual systems to stay in contact. Supervisors may play a key role in providing this integration. For example, Mohrman (1999) notes that leaders in effective geographically dispersed teams spent time building contexts for successful performance rather than managing day-to-day team activities.

Trust, VOs and performance management. Highlighting the importance of trust and communication processes (a third characteristic of virtual teams and organizations), Jarvenpaa and colleagues found that teams experience a form of swift trust, which allows them to take action in situations of high time pressure (Jarvenpaa et al., 1998; Jarvenpaa & Shaw, 1999). However, such trust is fragile and temporal, depending heavily on both task and social communication (Jarvenpaa et al., 1999). Cramton and Webber (1999) examined the impact of dispersion frequency and geographic dispersion on the processes and outcomes of 38 consulting teams. Quantitative and qualitative results revealed that teams whose members frequently worked from dispersed locations experienced less effective work processes, and greater geographic dispersion contributed to lower perceptions of trust and dependability toward other members.

Trust is a critical component of nearly every facet of performance management including rater and ratee goals, ratee—rater interactions, and the climate of the organization. Trust is repeatedly cited as a necessary element for successful VOs and teams. Yet, other defining features of VOs may counter the successful development of trust within VOs, namely geographic dispersion, cultural barriers, and the potential lack of face-to-face interactions. Because developing trust is especially important early in the life of a virtual workplace, Duarte and Snyder (1999) advocate the use of trust building exercises, a trust log, and a trust audit to create and maintain trust.

Shared skills and roles, VOs and performance. One assumption made in performance evaluation is that the nature of job performance is such that every individual can be held independently accountable for output by the organization. In virtual organizations, this assumption of accountability may not be met (DeVries et al., 1986). One of the primary advantages of virtual teams is the flexibility to combine individuals with the optimal mix of knowledge, skills, and abilities at appropriate times to meet organizational objectives (Kristof et al., 1995). In order to reduce the occurrence of difficulties relating to virtual teams, researchers recommend that careful attention be given to selecting team members who have superior team participation skills, proficiency with a variety of computer-based technologies, respect for cultural values, and adaptability to a changing variety of assignments and team memberships (Townsend et al., 1998). Similarly, Cascio (2000) discusses the need for virtual collaborative skills, virtual socialization skills, and virtual communication skills. Sophisticated information management skills are also necessary (Cramton, 2001), as well as members that have high levels of initiative, results orientation, integrity, and tolerance for ambiguity (Jarvenpaa et al., 1998; Mohrman, 1999). In addition to careful selection procedures, team members should be appropriately socialized to the virtual environment and provided with technical and communication training (Townsend et al., 1998).

Although there is general consensus that differences do exist between virtual and traditional teams, there is an on-going debate among scholars as to whether the competencies, training requirements, and behaviors needed for team effectiveness are fundamentally different in virtual contexts (Cohen, Gibson, Raven, Levenson, & Bartlett, 2000; Gluesing, Baba, Britt, & Huysse, 2000). Shared skills and roles found in VOs suggest that the frequent individual unit of analysis of performance management may not be optimal; performance management initially may need to be constructed and assessed at the team level. Yet, the difficulties found with team performance assessment (e.g., the difficulty in disentangling individual performance behaviors from team behaviors) may be exacerbated within VOs and teams by geographic dispersion and the lack of first-hand (via face-to-face interactions) performance information. Therefore, the unit of analysis in the virtual workplace may initially shift from the individual level toward greater team levels of analysis with the use of objective, countable performance measures.

Shared skills and roles within virtual organizations may also suggest the use of multiple raters in the performance measurement process. Although supervisors may be in a reasonable position to assess the effectiveness of the VO through objective performance indices, they may not be in the position to assess the team process or observe specific member behaviors. Therefore, team members may play a greater role in VOs than in traditional organizations. This multi-rater approach would be consistent with a greater emphasis for the developmental use of PM within VOs than for administrative purposes. More objective, countable performance indices may drive administrative, organizational decisions initially while behavioral performance data (provided by team members) may support individual/team level developmental uses.

Speed of service and customer focus. Finally, the virtual workplace is characterized by speed of service and response. Dynamic team membership without proximity limitations allows members to move from one project to another and to be assigned to multiple, concurrent teams (Cascio, 2000). Therefore, faster response times, reduced travel expenses, task specialization, and greater geographical reach are possible in virtual teams (DeSanctis & Monge, 1999). Furthermore, technology such as desktop videoconferencing systems, collaborative software systems, and the Internet provide a rich communication context for virtual team members (Townsend et al., 1998). All of these factors emphasize the appropriateness of using objective and countable performance measures. Although this suggests the use of objective performance measures initially, more behavioral indices may be desirable in order to more fully disentangle what individual or team factors lead to positive (or negative) outcomes and the extent to which such outcome measures result from external factors.

IMPLICATIONS AND CONCLUSIONS

Unfortunately, the use of virtual teams and other forms of virtual work in organizations has advanced beyond researchers' understanding of their dynamics (Cramton, 2001). Although there are literatures on group dynamics (e.g., Cohen & Bailey, 1997), sociotechnical systems theory, computer-mediated communication (e.g., Chidambaram & Jones, 1993), and the effects of distance on interpersonal relationships (e.g., Monge & Kirstie, 1980), these various research streams are just beginning to be combined to inform research on virtual teams and organizations (e.g., Cramton, 2001; Maznevski & Chudoba, 2000). Currently, much of the empirical work is based on case studies and qualitative analyses, which are then used to build theory. For example, Kristof et al. (1995) proposed an inductive model of virtual teams based on a case analysis of a project development team. According to their model, the virtual team should be examined at the organization, group, and individual levels. Further, because culture is a critical supporting feature of virtual teams and organizations, trust in the company and an open information climate should occur at the organizational level.

Using a scientist-practitioner or action research approach, there are at least two areas of research that deserve greater attention. First, the fact that individuals can work together on projects instantly and globally is both fantastic and fraught with pitfalls. We know little about the effects of such globally dispersed interactions on individual team members over-time. There is a significant possibility that members will not be aware of or drastically downplay the role of the immediate work context on other members. These context factors range from more obvious context features such as time differences and potential country-specific political and economic conditions to less obvious conditions including local weather, cultural norms, and country holidays. Similarly, the lack of face-to-face interactions and the significant reliance on written communication may heighten the potential for miscommunication and misunderstanding among team or organizational members.

A second issue that has received some attention and will continue to do so in both research and practice is the issue of trust within the virtual workplace. Trust has repeatedly been identified as a critical factor in the success of VOs, teams and performance management systems. The notion of swift trust is emerging in the VO and teams literature (e.g., Jarvenpaa et al., 1998). Such trust seems to develop even under conditions hostile to its occurrence. What is unclear is whether such trust requires certain basic context factors (e.g., an initial, positive face-to-face interaction or set of interactions) and/or whether there are individual differences among employees in the capacity to develop swift trust.

Research on virtual teams is in its infancy. There is great need for "extensive theoretical development, conceptual explication, philosophical analyses, empirical research, and substantive criticism" (DeSanctis & Monge, 1999, p. 700). Yet before such systematic, theory-based research can occur, practitioners and researchers alike need more basic descriptive information about the occurrence, characteristics, and conditions surrounding various forms of virtual workplaces. Practicing HR managers have the advantage here over academic researchers because they have more direct access to such information and observations. We know something about the prevalence of telework, yet know little about the circumstances where global, leaderless teams are likely to be formed. There still is not consensus on what features distinguish virtual work from more traditional work designs. As this chapter indicated, there may be a continuum of virtual work forms based on control and risk features, suggesting that the implementation of HR systems may be more appropriate within some virtual forms than within others. This is not new for organizational researchers or practitioners. There are many forms of work that our HR knowledge and systems do not readily or fully apply to including independent consultants and entrepeneurs. Future research will need to identify the task and boundary conditions in which virtual work will be most and least effective.

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CHAPTER 10

HYBRID REWARD SYSTEMS FOR VIRTUAL ORGANIZATIONS

A Review and Recommendations

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ABSTRACT

This chapter addresses the unique compensation needs of virtual organizations. A review of the literature suggests that various forms of virtual organizations may require tailored reward systems. We present different reward system strategies to accommodate the special needs of horizontal organizations, network organizations, alliances, and cellular organizations. Implications for future research and practice are discussed.

INTRODUCTION

Competitive pressures in the economic landscape have heralded radical transformations in the substance and character of the modern organizational structure. Traditional forms of arranging the corporation have been based on standardized principles and rigid reporting relationships to maximize efficiency and ensure consistency (Robbins, 1990). However, new organizational formats (referred to here as virtual organizations) have evolved in response to the increased demand for flexibility and innovation in the marketplace (Heneman, Ledford, & Gresham, 1999; Miles et al., 1997). Although the concept of virtual organizations is fairly new, compensation researchers and practitioners alike must rise to the challenge of developing new reward systems designed to keep step with this more fluid structure.

The purpose of this chapter is to focus on reward systems for virtual organizations, and toward this end we will specifically address three objectives. The first objective is to review the literature that has already been written. One omission in the current literature is a recognition of the fact that various forms of virtual organizations may require unique reward systems. That is, different types of reward systems are needed depending upon whether the organizational design is a horizontal organization, network organization, alliance, or cellular organization. The second objective of this chapter is to emphasize the fact that the concept of virtual organizations is inherently heterogeneous in nature. As such, "one size fits all" reward system prescriptions for virtual organizations are not appropriate. The third and final objective is to point out important implications for research and practice based on the first two objectives of this chapter.

LITERATURE REVIEW

Virtual organizations are comprised of people from multiple corporate entities that join forces to accomplish work (Crandall & Wallace, 1997). Such organizations have evolved to meet the demands of increased flexibility, integration, and synergism in the marketplace (Heneman et al., 1999), and can take a variety of specific formats. The most common virtual organizations are horizontal organizations, network organizations, alliances, and cellular organizations (each of which will be described in further detail below). The inherent variety in such virtual organizational structures suggests the need for carefully tailored compensation systems that dovetail on the unique features of each specific form.

The current literature on reward systems in virtual organizations can be described as follows. First, as one would expect, there is a very small number of articles that have been published, leaving very little guidance for researchers and practitioners. Second, the existing literature is very descriptive and prescriptive in practitioner sources and theoretical in academic sources. Empirical studies either of a descriptive or analytical nature are virtually nonexistent. Third, most of the work is organized by contrasting traditional compensation practices with compensation practices in virtual organizations. Fourth, the literature can and for purposes of this chapter will be organized using the following categories: base pay, incentives, equity, benefits, indirect rewards, and pay system management.

Base Pay

Base pay refers to the amount of wages or salaries provided to employees for their services. Traditionally, in bureaucratic organizations, base pay is determined on the basis of job evaluation and market surveys (Milkovich & Newman, 1999). Job evaluation systematically compares a focal job to other jobs or to written standards in terms of the value of the jobs to the company. This systematic comparison results in grades of jobs and ensures internal equity in the company. In order to establish external equity, internal jobs are compared to comparable jobs in the labor market through the process of market surveys.

Relative to organizational structure, the theory behind traditional pay systems is straightforward. Bureaucratic organizational structures are formed in response to stable labor and product markets in order to provide products and services in the most consistent manner. Consistency is maintained by paying people for consistently performing the activities described in a job description.

As business environments have become more turbulent, more flexible forms of organizational structures such as virtual organizations have become necessary in order to adapt to the changing business environment. Flexibility rather than consistency is needed to respond to changing consumer and employee preferences (Cantoni, 1997). In this new environment, employees need to be rewarded for flexibility in job assignments rather than for consistently performing the same duties specified in a job description. Consequently, new forms of compensation need to be developed to reward flexibility (Klaas, 2000). Our literature review identified new forms of base pay that emphasize flexibility including person-based pay (Crandall & Wallace, 1998; Tucker, 1995), broadbanding (Tucker, 1995), and classification (IBM study).

Person-based pay approaches, in comparison to traditional job evaluation, shift the unit of analysis from the job to the job incumbent. In particular, emphasis is placed upon the competencies of the person. Competencies include knowledge, skills, abilities, and other observable attributes of the person that are related to successful performance (Ledford & Heneman, 2000). Other attributes may include interests and attitudes. A common theme among competencies selected for compensation purposes is the need for flexibility. Knowledge may be emphasized because more knowledgeable people are more likely to be able to adapt to change.

Innovation and creativity may be emphasized for a similar reason or because the long term competitiveness of the firm depends on new ideas and products.

Although the logic for using competencies for base pay decisions is straightforward, it is not used very often by companies (American Compensation Association, 1996). It is instead used more often for developmental purposes in organizations. One major reason for the limited use of competencies in base pay decisions is the difficulty of pricing competencies in the external market even with the use of wage and salary surveys. Although technology in the compensation profession may eventually help to overcome this obstacle to competency-based pay, it is a very difficult approach to use in virtual organizations.

One notable exception to the limited use of competencies in organizations is the use of skill-based pay plans where skills alone serve as the building block for competency assessment. These types of plans seem to work well in manufacturing settings. Murray and Gerhart (1998) reported that skill-based pay in a manufacturing plant versus a comparable plant without skill-based pay resulted in greater productivity, lower labor costs, and improved quality.

Along with person-based pay, the flexibility needed in virtual organizations can be emphasized with broadbanding. Traditional job evaluation approaches often resulted in very rigid pay hierarchies. A limited number of jobs were captured by a pay grade with very small dollar differences within and between pay grades. This approach did yield consistent pay decisions for internal equity measures, but it is called into question when organizations need people flexible enough to be responsible for work performed across pay grades.

Broadbanding provides the flexibility needed by virtual organizations. In a broadbanded system there are a small number of pay grades with large dollar amounts within and between pay grades. Jobs that are similar to one another (e.g., occupation) are grouped together into one large band. As a result, there is more room to accommodate individual differences in work performed, seniority, and contributions to the firm (e.g., performance, skill) within the same job title and pay band.

The broadbanding approach is now used extensively in companies and the descriptive evidence suggests that these plans are effective, at least in the opinion of HR survey respondents. Unfortunately, there are no analytical studies of the effectiveness of broadbanding using experimental, quasiexperimental, or time series designs. A common concern voiced about broadbanding is that it may raise internal equity issues (Klaas, 2000). Also, if there is not a sound system of performance management in place, broadbanding may lead to an unwanted escalation in labor costs (Heneman, 2001).

Classification systems represent another approach to provide more flexibility in base pay determination. With this approach, job evaluation is still used to maintain consistency for internal equity, but the method of job evaluation is less rigorous and cumbersome than other traditional job evaluation methods (e.g., point-factor system). As such, it is a compromise between person-based pay systems and broadbanding on one hand, and traditional job evaluation on the other, as shown in Table 1.

Table 1. Flexibility, Rigors, and Internal Equity in Work Evaluation

Work Evaluation Approach	*Flexibility*	*Rigor*	*Internal Equity*
Person-Based	High	Moderate	Moderate
Broadbanding	High	Low	Low
Classification	Moderate	Moderate	Moderate
Traditional Job Evaluation	Low	High	High

Historically, classification has primarily been used in the public sector. More recently, however, it is also being used by private sector companies such as IBM to promote a more flexible system.

Incentives

The norm for incentive pay in traditional bureaucratic organizations has been merit pay (Heneman, 1992). With this approach, permanent pay increases are made to base salary based upon ratings of employee performance. Three trends have rendered this approach obsolete for virtual organizations. First, virtual organizations often are newer organizations that do not have the capital available for permanent base pay increases. Capital must instead be diverted to start-up costs. Second, technology has improved such that there are more measures of performance than ever before. Rather than relying on ratings of quality and quantity of performance, organizations often have actual measures of quality and quantity available to them. Third, employees may report to multiple companies. Hence, the traditional merit pay practice of having the immediate supervisor of one company make ratings of employees may no longer work. Three new approaches to performance measurement and incentive pay deal with these issues in virtual organizations: variable pay, 360-degree reviews, and balanced scorecards.

Variable pay refers to cash bonuses that are linked to individual employee performance, (e.g., MBO), team performance, (e.g., team pay), business unit performance (gainsharing), or organizational performance (e.g., profit sharing). With variable pay, cash is in the form of a bonus so it does not have the compounding cost effect of permanent pay increases. Also, performance is usually defined in the form of performance indicators under the control of employees.

The 360-degree reviews refer to performance evaluations being conducted by multiple evaluators. Sources of these evaluators include the job incumbent, immediate supervisor, coworkers, subordinates, and customers or other external parties. These parties may come from one organization or multiple organizations as in the case of alliances. This approach to evaluation is more likely to lead to comprehensive evaluations than traditional reviews by the immediate supervisor only, because in virtual organizations, employees may be working in remote cities, have multiple bosses, and multiple work locations.

The concept of a balanced scorecard was developed by Kaplan and Norton (1996) and refers to a multidimensional set of performance dimensions to evaluate employee performance. An example of a balanced scorecard is shown in Table 2. This approach suggests that as with 360-degree reviews, employees must be held accountable to multiple standards of performance. By looking at "hard" measures of performance (e.g., financial and operations measures) *and* "soft" measures of performance (e.g., customer service and employee satisfaction), we are likely to capture more of the performance construct spike. Research has shown that hard and soft measures only correlate about .60 with one another (Heneman, 1986). That is, only 36% of the performance variance is shared by hard and soft measures. Moreover, as people in virtual organizations learn to function effectively in these new organizational structures, how a person performs (e.g., customer service) is as important to reward as what they accomplish (e.g., financial results). Both the 360-degree feedback method and the balanced scorecard method imply a pay adjustment based on the performance review; these particular review methods can be especially valuable tools in managing effective performance in virtual organizations.

Table 2. Balanced Scorecard

		Results		
Performance Standards	*Weight*	*Below*	*Meets*	*Exceeds*
Financial Goals				
Operational Goals				
Customer Service Goals				
Employee Satisfaction Goals				

Equity

In traditional organizations, turnover was minimized by providing lifetime employment. In virtual organizations where, as the name implies, the organizations may only survive a limited time span, turnover is minimized with the granting of stock options. These options, which provide ownership or equity in the company, were traditionally given only to executives but are increasingly being granted to all levels of employees. Stock options are also being used in companies that are not publicly traded. These stocks are sometimes referred to as "phantom" stocks. Payout is based on a measure of book value of the company rather than the market value of the company. As such, a book value measure becomes a "proxy" for market value.

Although some employees have become rich from stock options, many have seen these options go "underwater" which means the purchase value of the stock is higher than the value of the stock when cashed out. Hence, the perceived value of stock is very heavily dependent upon the current status of the business cycle (Platten & Weinberg, 2000).

Benefits

Under traditional pension plans, the amount received upon retirement was heavily dependent upon the years of tenure in the company. As virtual organizations tend to imply a short-term duration with any one employer, employees are increasingly looking for portability in pensions (Crandall & Wallace, 1998). In order to facilitate portability, employers have created cash-balance pensions that minimize the premium paid for tenure with one organization (Burlingame & Gulotta, 1998). Although cash balance plans may be desirable for more junior employees in virtual organizations, they may present problems when trying to attract talented senior employees to spin-off virtual organizations from large, established firms. The cost of cash balance plans to the organization is usually less (Oppel, 1999) than the more traditional type (i.e., defined benefit and defined contribution), so some virtual organizations with high capital needs may not be able to afford to continue to offer traditional benefit plans to long-tenured employees. With a mandatory shifting of all employees to cash-balance plans, virtual organizations risk losing the services of long-tenured employees from the core company. Whenever possible, employers that shift from traditional to cash balance plans should give employees a choice as to whether to participate (McNamee, 1999).

Indirect Rewards

Indirect rewards typically include three categories of rewards: development, recognition, and the work environment. Development can take many forms, including training, mentoring, visibility, professional growth and promotion. Elements of recognition include time-off, gifts, awards, praise, and job assignments (such as job enlargement and/or job enrichment [Hackman & Oldham, 1976]). The work environment includes physical space (e.g., offices) and the psychological meaningfulness of work.

Along with monetary rewards that are directly visible to employees, non-monetary or indirect rewards play an important role in virtual organizations. Non-monetary rewards are also important because they become a symbol of the culture of the organization. They also have value to the firm because they sometimes have costs associated with them that are less than direct monetary rewards. This smaller cost is important to virtual organizations with high capital needs.

Little is known about the effectiveness of indirect (non-monetary) rewards. One exception is the psychological meaningfulness of work. Research has shown that the psychological dimensions of work are correlated with job satisfaction (Fried & Ferris, 1987; Loher, Noe, Moeller, & Fitzgerald, 1985). However, recent surveys have shown that in team pay environments, development and recognition are as important or even more important to employees than direct pay (Tonkin & Ellis, 1997).

It would appear that organizations need to pay more attention to indirect rewards. One promising method to do so is to build psychological rewards associated with work into job analysis as reminded by Heneman and Heneman (1994) and shown in Table 3. Wherever possible, we suggest that it is always appropriate to use indirect rewards in the workplace, regardless of the type of organizational structure.

Pay System Management

In traditional organizations, pay systems were often designed and implemented so long ago (e.g., 40 year old job evaluation system) that employees trust the system in place. In a "new" virtual organization, with a brand new pay system or a changed pay system, several issues can arise. First, there may be a lack of trust in the new pay system especially if employees have not been involved in the design and implementation of the pay system. Distrust may stem from the pay system being new or because it is different from traditional systems. Hence, participation in decision-making concerning the compensation system would appear to be essential in virtual organizations.

Table 3. Rewards and Job Analysis: Administrative Assistant Example

Reward	*Dimension*	*Amount*	*Differential*	*Stability*
1. Starting pay	A. Individual pay (extrinsic)	$2,000/month minimum	May exceed minimum, depending on KSAOs	Changes according to market conditions
2. Pay raises	A. Individual pay (extrinsic)	Typically, 2–3%	Across the board (same % for all)	Range from 0% to 10%, annually
3. Bonuses	A. Individual pay (extrinsic)	2.5% average	Range from 0% to 10%, depending on performance	Will vary each year, depending on size of bonus pool
4. Doing different tasks	B. Skill variety (intrinsic)	0 = 4.8*	SD = .73*	Frequent change
5. Using complex skills	B. Skill variety (intrinsic)	0 = 3.9*	SD = 1.54*	No recent changes; none anticipated
6. Doing simple and repetitive tasks	B. Skill variety (intrinsic)	0 = 5.4*	SD = .37*	Will continue to be part of job

* Rating scale (1–7) values, based on the three skill variety items from the Job Diagnostic Survey (JDS).

Second, there may be differences not only in pay but also in the pay systems of employees working side by side. This is especially true in the case of alliances as a form of virtual organization where the alliance may have employees from different companies with different pay systems working with one another. In order to manage this issue, virtual organizations must be very attentive to internal equity issues when designing pay systems. Not only must actual pay systems be made comparable to one another, but also employee perceptions of the comparability are important and necessary. Organizational surveys would be an important component of this process to monitor employee perceptions.

VIRTUAL ORGANIZATION FORMS AND HYBRID REWARD SYSTEMS

As shown in chapter one of this book, there is no one agreed upon definition of virtual organizations. As a result, organizations and researchers must wrestle with a variety of different types of organizational structures that might fall under the virtual organization category label. The purpose of this section of the chapter is to delineate the various forms of virtual organizations and, based on the previous literature review, indicate the types of hybrid reward systems that might be appropriate for each form of virtual organization.

Horizontal Organizations

Horizontal organizations are structured such that teams are used to facilitate horizontal processes in organizations. Bureaucracy, which tends to emphasize vertical processes, is minimized. In short, horizontal organizations are so named because they operate independent of the traditional bureaucracy. There are two types of horizontal organizations: intact work teams and temporary work teams.

Intact work teams. In an organization with intact work teams, work is organized on the basis of permanent teams. An auto manufacturer, for example, may have a series of teams organized around various car components (e.g., engine, drive train, etc.). Employee skill levels are critical in this type of environment because model changes occur frequently and also because employees are expected to perform multiple tasks. In this type of production environment, where skills are highly valued, skill-based pay would lend itself well to an intact work team structure. Team-based and/or business unit variable pay might also be useful in fostering group cohesion and morale. The 360-degree reviews might be used to certify skill mastery by team members; balanced scorecards might be useful to give team members insight as to how they are performing on several relevant dimensions. Because the impact of any one team on overall organizational performance is low, the level of stock and profit to be allocated to a team should also be low. Instead, variable pay should be offered for operational results under the team's control. It is recommended that a defined benefits retirement plan (contribution of benefits) be provided to retain employees that are learning fairly company specific skills. Indirect rewards in the form of recognition may help increase intrinsic motivation and retain employees.

Temporary Work Teams. Temporary work teams are defined by a collection of people that come together to pursue common goals for a specified period of time and then disband. Hence, they are temporary rather than permanent. Examples include tasks forces and new product development teams.

An example of a new product development team is shown in Figure 1 and will be used to further describe this virtual form. New product development teams are often cross-functional in nature. These teams comprise the brightest and hardest working from each of the functional areas. Often, in areas such as information technology, they represent the core capability of the company; that is, if new and innovative products and services are not brought to market in a timely manner, the company will falter. These teams are highly dependent upon operations teams that ensure the product or service developed by the new product development team performs up to specifications.

With this form of virtual organization, the emphasis is more on results than skill development. Results must be achieved by the new product development for the organization to survive and these results are under the control of the new product development team. Because the performance of the new product operations team is highly dependent upon well-designed

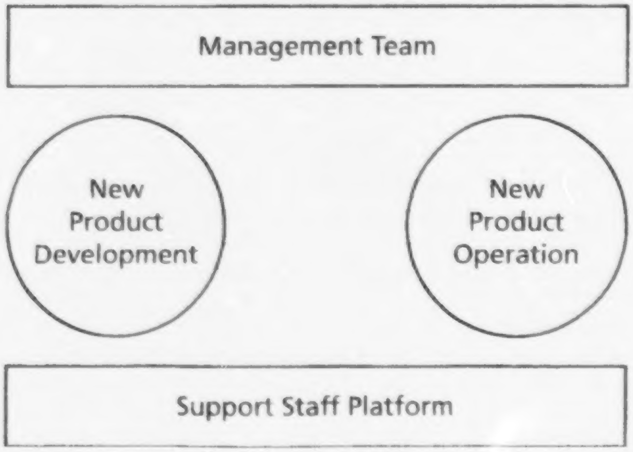

Figure 1. New product development teams.

products or services from the new product development team, stock as well as variable pay should be used so that the two different types of teams are interdependent upon one another (e.g., team pay or gainsharing). In small or start-up companies it might be possible to achieve the same outcomes with some type of profit-sharing plan. Performance review methods such as 360-degree feedback and the balanced scorecard approaches can provide meaningful insight into managing the complex interdependence among and within teams.

Again, a defined benefits plan may help retain these brightest and hardest working individuals. These are the types of individuals who also may value indirect rewards such as professional development, mentoring and job assignments.

Network Organization

In a network organization, core functions in which the organization has competitive advantage are retained in the organization while non-core functions are outsourced. As an example of a network organization, Figure 2 shows a network organization for a consulting firm. Because of the outsourced functions, the reward system must focus on aligning the interests of the outsourced firms with the interests of the consultants. To do so, emphasis must be placed upon variable pay and to a lesser degree, profit sharing to make this alignment happen. Performance review methods such as 360-degree feedback and the balanced scorecard approaches can provide meaningful insight into managing the complex interdependence among and within teams. Stock should be at a minimum for the outsourced firm because the outsourced firms are not owners and they will dilute the stock available for the consultants taking the risk in this relationship.

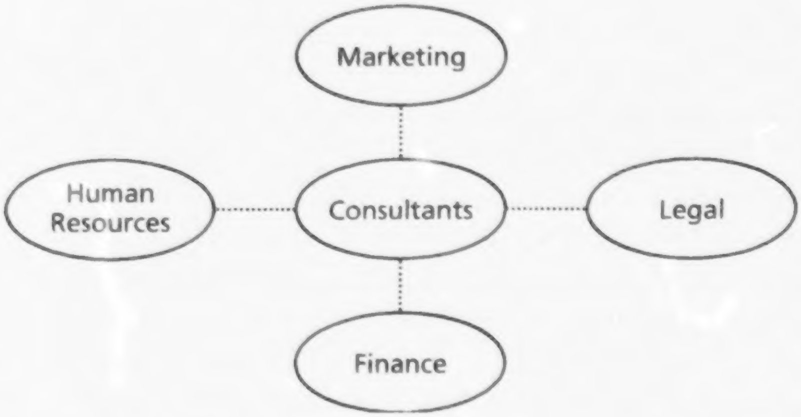

Figure 2. Network organization.

Cash balance benefits should be used, especially for the outsourced firms where employees may continuously turnover. However, defined benefit programs may be appropriate when there is an identifiable "core" group of employees that the firm wishes to retain. Indirect rewards such as training, visibility, gifts, praise, job assignments and physical space may be used to establish the culture and to motivate individuals, particularly in the outsourced firms.

Alliances

Organizations partner together in order to become the "best product or service and lowest cost" provider; hence, the best element of each organization is combined. An example of an alliance is shown in Figure 3. T1A is the alliance and it is formed with three organizations: Bank One, AT&T, and IBM. In order to provide outstanding financial services, Bank One provides the business, AT&T brings the network, and IBM brings the information technology.

In order to align the interests of the parties together, profit sharing and variable pay should be used. Performance review methods such as 360-degree feedback and the balanced scorecard approaches can provide meaningful insight into managing the complex interdependence among and within teams. Stock is difficult to offer because there are three different "owners" of the alliance. As a substitute for stock however, phantom stock could be created whereby a book value proxy is created to substitute for the market value of the company.

Due to the interaction required of the various firms and the reduced costs involved, cash balance benefits may be used along with a strong emphasis on indirect rewards. For example, job assignments and the psychological meaningfulness of the work may help the integration of the companies to better produce and service customers. Awards, gifts, praise and visibility may also be enticement to increase motivation.

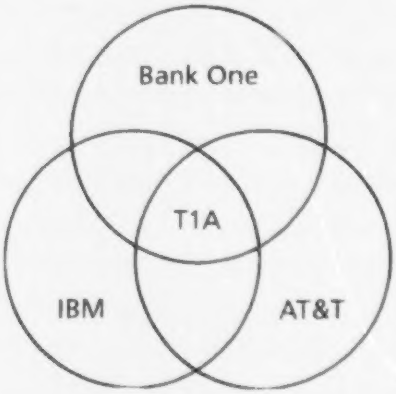

Figure 3. Alliance.

Cellular Organizations

A cellular organization is very similar to an alliance. However, unlike an alliance, the boundaries of customers, suppliers, outsourcers, and other organizations are blurred and blended. The organization is like a cell in that it is living and adaptive (Miles et al., 1997), and is usually temporary in nature. As shown in Figure 4, the structure is so named because the form even resembles a cell under the microscope.

Again, as with networks and alliances, alignment of the parties' interests is an issue. Because the boundaries of the various organizations are blurred, it is very difficult to use variable pay; that is, performance attributable to each part of the cell is uncertain. When this is the case, high emphasis needs to be placed upon profit sharing in order to align interests. Performance review methods such as 360-degree feedback and the balanced scorecard approaches can provide meaningful insight into managing the complex interdependence among and within teams. Stock can be used as well if ownership is well understood. If not, then phantom stock can be used. As with networks and alliances, cash balance benefits should be used along with heavy emphasis on indirect pay. The former recognizes the temporary nature of the organizational structure while the latter recognizes the need to build an identifiable culture across the various constituents' part of the structure.

Because of the blurred boundaries between the organizations, skill-based pay is needed to develop "soft" skills to deal with the ambiguity of the structure. These soft skills might include self-management, conflict management, and stress management.

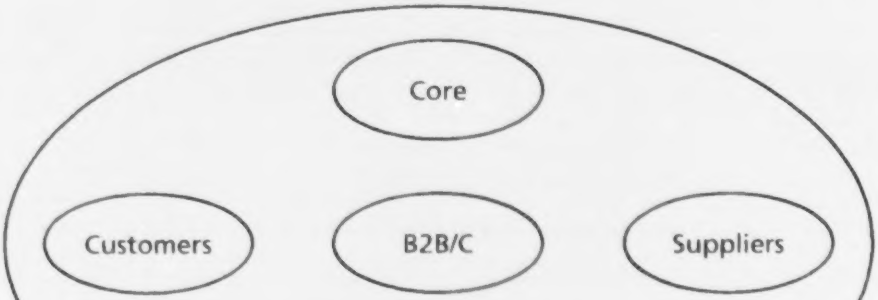

Figure 4. Cellular organization.

Summary

As can be seen in this section, not all forms of virtual organizations warrant the same reward systems. Differences in hybrid systems for various forms of virtual organizations are summarized in Table 4.

Table 4. Recommended Pay Components by Virtual Organization Form

	Virtual Organization Form				
	Horizontal				
Pay Component	*Intact Team*	*Temporary Team*	*Network*	*Alliances*	*Cellular*
Skill Based Pay	High	Low	Low	Low	High
Variable Pay	Mod	High	High	Mod	Low
Stock	Low	Mod	Low	Mod	High
Profit Sharing	Low	Mod	Mod	High	High
Indirect Rewards	Mod	Mod	High	High	High
Defined Benefits	High	High	None	None	None
Cash Balance Benefits	None	None	High	High	High

IMPLICATIONS

Given the newness of virtual organizations and the limited amount of literature to draw upon, there are important implications for where we go next with rewarding people. Recommended action steps will be grouped by research and practice. However, we believe that development in pay systems for virtual organizations will be best served by the interchange between research and practice.

Research

Several related areas are in need of immediate research attention. First, research is needed with the organization as the unit of analysis to study the effectiveness of various reward systems in alternative virtual organization forms. Work has already been conducted on mechanistic versus organic organizations (Gomez-Mejia & Balkin, 1992) and it needs to be expanded to look at various organizational forms within the organic category.

Second, given the newness of these virtual organization forms and compensation practices, rigorous case study research is needed as well. Rigorous case study research has a long history in human resources and industrial relations. More of this type of research is now needed in the new economy. Crandall and Wallace (1998) present an excellent start in this area.

Third, as pay systems become more fluid (e.g., broadbanding) in virtual organizations, internal equity issues are likely to arise. It would appear that the units that are being "counted" for pay purposes (e.g., skills, seniority, performance) may not be clear to employees. As a result, distributive and procedural equity issues are likely to arise. These potential problems with new organizational structures and new compensation systems seem to have been ignored in the literature. While equity issues have been heavily researched in traditional organizations, they deserve another look in virtual organizations.

Practice

Pay practices in virtual organizations need to be rethought both in terms of content and process. In terms of content, care must be taken in selecting the appropriate pay components for various forms of virtual organizations. Popular pay plans, especially stock options, are touted as a panacea in the press. As shown here, stock options, as well as other new forms of pay, must be carefully matched with the organizational structure in order to be effective.

In terms of process, employee participation in decision-making is absolutely crucial with the hybrid pay forms being used in virtual organizations. Participation by employees should be included in pay plan design, implementation, and administration. By involving employees, they are more likely to understand the pay system, trust it, and be willing to act upon it to further the goals of the organization. This lesson for pay systems was pointed out years ago by Lawler (1981), but now seems to have particular salience for virtual organizations.

CONCLUSION

The new reality of the workplace necessitates the *interdependence* of jobs, thus rendering traditional paradigms nearly obsolete (e.g., bureaucratic structures). Reward systems have fortunately evolved over the years to accompany this transformation in work. As a result, organizations have many options to consider when developing a pay system for a virtual organization. The key to this process, however, is to carefully match the appropriate reward system to each type of virtual organization structure. As shown in this chapter, there is no one universal best practice when it comes to reward systems in virtual organizations.

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CHAPTER 11

NEGOTIATION IN VIRTUAL ORGANIZATIONS

Roy J. Lewicki and Brian R. Dineen

ABSTRACT

Our purpose in writing this chapter is to explore the nature of negotiation in virtual organizations. Specifically, we present several guiding principles that facilitate an understanding of some of the unique ways that the nature of virtual organizations can shape or modify negotiation processes and outcomes. First, we describe several elements of the negotiation process that are fundamental to any negotiation situation. Second, we review key principles of traditional negotiation, including context, negotiating dynamics, communications, and individual differences. We then discuss these principles from the standpoint of virtual negotiations. Finally, we conclude by making some prescriptive statements about how one might negotiate more effectively in a virtual environment.

INTRODUCTION

In this chapter, we will explore the nature of negotiation in the virtual organization. While the process of negotiation has been written about extensively in the management literature (Fisher, Ury, & Patton, 1991; Lewicki, Hiam, & Olander, 1996; Lewicki, Saunders, & Minton, 1999), little has been written about the ways that negotiation processes might be different or unique in a virtual organization environment. There are many different ways to understand negotiation. In this chapter, we present several guiding principles that should facilitate an understanding of some of the unique ways that the nature of virtual organizations can shape or modify negotiation processes and outcomes. First, we describe several key elements of the negotiation process that are fundamental to any negotiation situation. Second, we review key principles of traditional negotiations, including context, negotiating dynamics, communications, and individual differences. Next, we discuss these areas from the standpoint of virtual negotiations, describing relevant research and highlighting points of similarity and difference. Finally, we use this review to make some prescriptive statements about how to negotiate more effectively in a virtual context.

FUNDAMENTAL ELEMENTS OF NEGOTIATION

We begin by reviewing some basic elements of negotiation that are common to all organizational settings. While many readers may be familiar with the negotiation process, others may be reading about negotiation for the first time. It is therefore appropriate for us to review some fundamental negotiation elements before we discuss the ways that virtual organizations may affect and change negotiation process and dynamics.

Negotiation is a very complex social process. Two or more parties, each with different preferences or priorities, are interacting with each other to achieve some agreement about those preferences and priorities. Lewicki and colleagues (1999) define the negotiation process as having several fundamental elements:

- Two or more parties: individuals, groups, or organizations.
- A conflict of interest. Each wants different things, and the parties must find a way to manage those differences.
- A voluntary process. The parties choose to negotiate vs. pursuing alternative ways to achieve their objectives—i.e., going it alone or pursuing a less satisfactory agreement.
- Expectation of "give and take." Each expects that they, and the other, will have to modify their objective or make concessions in order to reach an agreement.
- The pursuit of both tangible and intangible goals. *Tangible* goals relate to the specific "discernable" objectives of the parties—a particular price, or rate, or terms of the agreement. However, the parties often have *intangible*, or psychological goals—to win, to beat the other, to protect or defend "a principle," to look good to the people whom they report to or are accountable to. As frequently noted,

intangible goals are often as important, if not more important, than tangible goals; when disputes reach an impasse or the parties seek out neutral third parties, it is often because the intangible objectives have become so prominent that they are overshadowing the tangible objectives (Lewicki et al., 1999, pp. 6–7).

- Varying outcomes. Because negotiation is a process of resolving differences between two or more parties, negotiation outcomes can be described in terms of the degree to which they actually meet the desired goals and objectives of each side. We can represent possible outcomes to a conflict in a two-dimensional matrix in which one dimension is the degree to which you achieve the outcomes you want, and the other dimension is the degree to which the other party achieves the outcomes they want (see Figure 1). Locating any given outcome in this space allows us to describe both conflicts and outcomes in the familiar terminology of "win-win," "win-lose" and "lose-lose." As can be seen, outcomes in which both parties are highly satisfied with the outcome are typically called "win-win"; when only one party is satisfied, the outcome tends to fall in the "win-lose" space; and when neither party is satisfied, the outcome can be called "lose-lose."

Negotiation is an extremely common process in organizations. At the individual level, two clerks discuss how to divide up a pile of paperwork in order to complete it by the end of the day. Managers coordinate with each

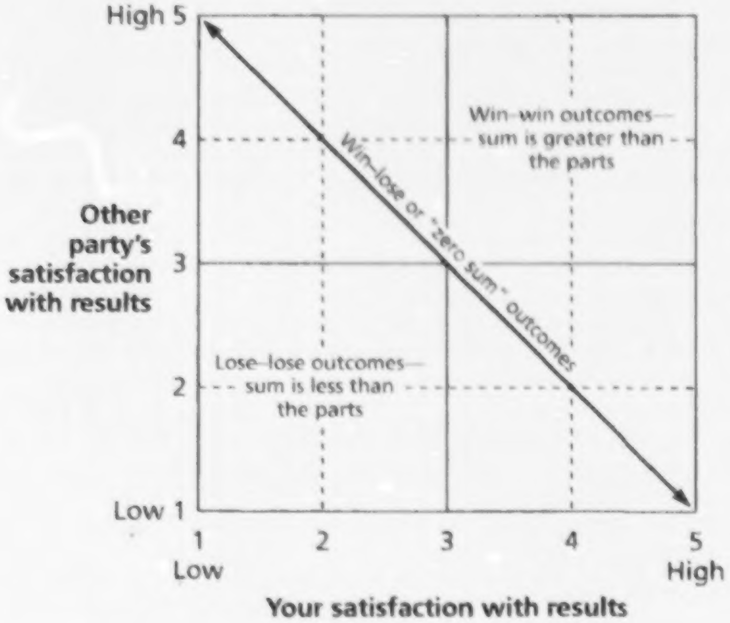

Figure 1. Outcomes can be win–lose, win–win, or lose–lose.

other to make sure that the opening of a new warehouse proceeds smoothly. Purchasing agents represent their organizations to negotiate the price and delivery of new supplies of raw material. A customer requests a price discount and free delivery on a very large order. Labor and management periodically sit down to discuss the terms and conditions of the employment relationship—how will workers be paid, what other benefits will they receive, and what jobs and duties are they expected to perform. And organizations themselves frequently negotiate with their environments, as when companies decide to acquire another company, merge together, or form a joint venture or alliance in order to improve their strategic position in the broader marketplace.

Negotiation is used to make strategic choices and decisions when parties have different preferences and priorities (Lax & Sebenius, 1986; Raiffa, 1982); it is used to coordinate actions when parties have motivations to both compete and cooperate (Rubin & Brown, 1975; Walton & McKersie, 1965); it is used as a proactive process by which organizations deal with their environments (Murray, 1983). As a result, managers need to know "how negotiation works," and how to make it work more effectively to achieve their strategic position in the broader marketplace.

THE NATURE OF NEGOTIATION IN ORGANIZATIONS

There are two major aspects to negotiations that we will discuss when examining the negotiating process. First, the parties have several different options for managing conflict, and negotiation is only one of the options. Second, when engaged in negotiation in organizations, parties clearly have to decide on the importance of the specific outcome and ALSO the importance of the future relationship with the other party. This choice clearly dictates the strategy they pursue.

1. *There are variations in the strategies used to manage conflict.* Negotiation is a process of conflict management. Like negotiation, conflict is inevitable in organizations (George & Jones, 1999; Kochan & Verma, 1983). In studying the true nature of managerial work, Mintzberg (1975) pointed out that of the ten most common roles filled by managers, three of them—resource allocator, negotiator, and disturbance handler—are clearly related to the management of conflict.

   When conflict occurs in an organization, there are three primary ways that the disputing parties can resolve it:

   - They can try to work it out themselves. Researchers have identified five fundamental styles of handling interpersonal conflict: Avoiding, Accommodating, Competing, Compromising and Col-

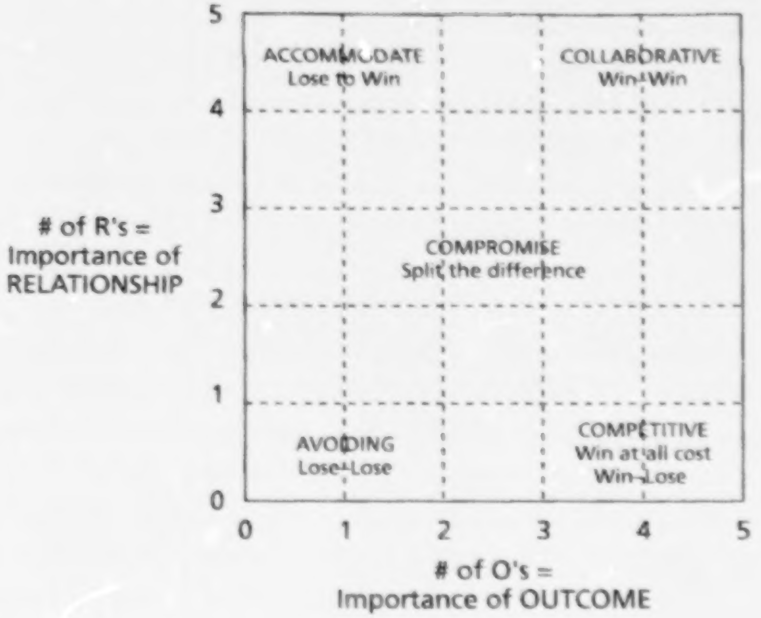

Figure 2. The five legitimate negotiation strategies.

laborating (Kilmann & Thomas, 1977; see Figure 2). As we will describe later, some of these styles can also be described as approaches to negotiation.

- They can take the dispute to a "third party" who may help them resolve it. The clerks can go to their supervisor and ask for a decision or for help in resolving the problem. Labor and management seek out third parties to help them arrive at a viable contract. These third parties typically serve as arbitrators (people who actually propose—and sometimes impose—a conflict solution on the parties) or mediators (people who help the two parties negotiate more effectively so that they arrive at their own solution). In many organizations, ombudsmen also function as third parties by investigating the dispute, validating claims and trying to help the parties find an amicable settlement (Rowe, 1995; Sheppard, 1984).
- Finally, they take their conflict to a dispute resolution system, such as a grievance system, an appeals procedure, or even a court of law, where the parties expect to be able to have their arguments heard and their point of view honored, and then to move toward some kind of settlement (either by relying on existing law and policy or by creating new law and policy to govern such situations). Taken together, these second and third options are often

referred to as Alternative Dispute Resolution (ADR) (for an excellent review, see Costantino & Merchant, 1996).

2. *Parties differ in their preferences for obtaining tangible outcomes and maintaining the relationship with the other party.* There are two major forms of outcomes one can pursue in a negotiation. The first is a substantive outcome. These are outcomes you want to achieve on specific issues. Each clerk wants to make sure that he or she does not receive more than a fair share of the work. The purchasing agent wants to receive a favorable price and delivery schedule for the raw material. Workers want to receive a pay increase and a better benefit package from the company.

   The second major outcome is a relationship outcome. Most research on negotiation has studied the give-and-take process as though it was an isolated event, occurring between parties who do not know each other and who have no past or future relationship. However, most actual negotiations in the workplace occur between people who DO know each other, negotiate frequently with each other, and have some past or future relationship. This reality has several important consequences:

   - Preparing for negotiation will require an analysis of the relative importance of the outcome and relationship goals. In some negotiations, the substantive outcome is the most important element; but in other negotiations, the quality of the ongoing relationship is the most important element.
   - Maintaining the relationship will be a critical goal when the parties have to work together repeatedly over a period of time. If one party ignores the relationship and only pursues outcome goals, he or she may achieve an extremely favorable outcome, but the other party may feel angry, upset or even betrayed. As a result, in the future, the "loser" is likely to engage in behaviors that are designed more to punish the other for the past defeat than to seek success on current strategic goals. In organizations, the long-term consequences for both parties can seriously hamper their ability to agree and work together.
   - Thus, there are times when maintaining the relationship may be MORE important than the substantive outcome, since parties who negotiate continually with each other need to find a way to achieve their objectives, but not at the expense of the other.

   Therefore, in Figure 2, we can represent a negotiator's strategic alternatives in a two-dimensional matrix, reflecting the degree to which a negotiator is concerned about achieving specific outcomes, and or maintaining/enhancing the relationship with the other party.

While a negotiator's strategy can be located anywhere in this two dimensional matrix, there are five commonly identified strategies that tend to be used by either party:

(a) Collaboration, in which the negotiator attempts to maximize on both the substantive outcome and the relationship;
(b) Competing, in which the negotiator attempts to maximize the substantive outcome and disregard the relationship;
(c) Accommodating, in which the negotiator attempts to maximize the relationship outcome and ignore the substantive issues;
(d) Compromising, in which the negotiator places some (but not complete) emphasis on both the outcome and the relationship;
(e) Avoiding, in which the negotiator seeks to minimize emphasis on either the outcome or the relationship.

Much of what is written about negotiation has dominantly focused on the strategy and tactics of the collaborating (win-win) or competing (win-lose) approaches. In negotiating terminology, collaborative or win-win strategies are often called *integrative*, and competitive or win-lose strategies are often called *distributive*. We further discuss additional, more specific principles of negotiation below.

The Negotiation Context

Because our objective in this chapter is to identify key principles of negotiation in order to understand how negotiation changes in a virtual organization environment, we briefly touch on a number of these principles from a more traditional perspective before discussing them from the standpoint of virtual negotiations. Readers are encouraged to consult the references for a more extensive treatment of these principles, as well as negotiation strategy and tactics.

First, we turn to a discussion of contextual factors that are important to negotiations in general. Thompson, Peterson, and Kray (1995) have suggested a number of contextual factors that impinge upon a negotiation, including the number of parties and the relationship between them, prevailing norms, and outcomes that the parties desire. We address each of these in turn.

1. *Nature of the actors and their audience.* Negotiation is largely a two-party process. In this chapter, we will dominantly refer to situations in which one individual is negotiating with another party. This "dyad"—one individual with another—is the most common unit of analysis in the research literature. However, it is clear that there are

many other levels at which negotiation occurs. First, we sometimes negotiate "with ourselves," in that the conflict over different preferences and priorities is often inside us, rather than between another party and us. Thus, how we make choices among conflicting or competing alternative courses of action can be viewed as a negotiation (cf. Bazerman, Tenbrunsel, & Wade-Benzoni, 1998). Second, there can be more than two parties at the negotiation table. There can be conflicting preferences or priorities among groups of three or more, each of them arguing for their own point of view. For example, if a group of office workers is discussing where to hold the office Holiday Party, each may prefer a different location or choice of menu. In these situations, group negotiations often resemble group decision making processes (Bazerman, Mannix, & Thompson, 1988; Brett, 1991), as parties debate the alternatives and then find ways to make a decision about what they will do. Multiple party negotiations also often lead to "coalitions," as some parties agree to band together to support each other's preferences. Particularly if groups are going to use some form of voting or "majority rule" as the process for making decisions, parties negotiate with each other to create a set of common views and a subgroup that is large enough to carry the decision.

Third, there are times when negotiators are not representing their own views in the deliberations, but instead are representing the views of others. In our earlier example, the purchasing agent is negotiating on behalf of the organization that employs him. His job is to get a cheaper price on raw materials so that the company can make the product more inexpensively and save more money on each sale. The organization will evaluate the purchasing agent based on how well he does this job, and hence he is accountable to that organization to understand and achieve his employer's objectives. As we will point out, when one negotiates as an *agent*, representing the interests of other parties (rather than one's own interests), the strategy and tactics are often different. Agents often pursue their own interests, as opposed to strongly representing the interests of those who employ them. Lastly, and most complexly, negotiations can be a mixture of multiple parties representing multiple groups and organizations. Mergers, alliances and joint ventures, community disputes, regulatory negotiations, policy making deliberations and complex international conflicts often include multiple parties representing their own interests and/or the interests of others, and offer us an opportunity to see negotiations in their most complex and interesting forms.

2. *Prevailing norms.* Most negotiations are governed by informal "norms"—expectations that the parties have of how the process will

be conducted. Although these norms are often not stated explicitly, the nature and strength of the norm can be detected based on the magnitude of the reaction when it is violated. Norms may also differ, depending on the type of negotiation that we are engaged in. Thus, while parties using a collaborative strategy (committed to both the outcome and the relationship) may work hard to live by and enforce the norms, parties using a competitive strategy may intentionally violate these norms or follow OTHER norms in order to gain advantage. Here are a few norms that shape face-to-face negotiations:

- *Taking turns.* It is expected that negotiators will take turns. One makes an offer or demand, and the other then replies (often called "reciprocity"). As we stated in the opening definition, parties expect "give and take" in a reciprocal manner.
- *Common courtesy.* Related to taking turns is the expectation of certain "common courtesies"—keeping an appointment, speaking calmly, talking directly to the other, listening, honoring verbal agreements, etc. In short, people expect that the informal "rules of civil discourse" will apply.
- "*Level playing field.*" In many negotiations, the informal norm is that both parties approach the process with equal power. Each party can put items on the agenda, each has an equal turn to speak, each can express their perspective fully, and each must ultimately approve the outcome if it is to be binding. However, as noted by those studying power in negotiation (see Lewicki et al., 1999 for one review), power is very complex and often fleeting. And again, competitive parties are likely to seek ways to enhance and use power to dominate the other rather than to guarantee the other a level playing field.
- *Fairness.* Finally, negotiating parties often assume that the process and outcome should be fair. Often, fairness means "equality"—equal time to speak, or an outcome that divides the outcomes equally. But judgments of fairness are strongly *relative*—that is, what one side considers fair is not what the other considers fair—and parties may also disagree about how fairness should be determined (see Lewicki et al., 1999 for a review). Gaining a common definition of both a fair process and a fair outcome is often the hallmark of a highly successful negotiation.

3. *Outcomes and relationship as objectives.* As noted above, parties tend to use strategies and tactics that will move them toward achieving "winning" outcomes—that is, outcomes that allow them to achieve their objectives. Thus, they will tend to pursue collaborative or competitive strategies—because both these possibilities enhance the likelihood that the party will achieve his/her objectives, although the

competitive one is more likely to damage the relationship in the long term.

Negotiation Dynamics

A second area of negotiation that has received much attention is the "give and take" or dynamics of negotiation. In this section, we briefly review two aspects of negotiation dynamics: how the parties manage emotionality in negotiations, and how the parties define the boundaries for what is acceptable ("ethical") vs. unacceptable ("unethical") conduct.

1. *Management of emotions.* The literature on the role of emotions in negotiation is quite mixed. For example, some have minimized the role of emotion in negotiation (e.g., Raiffa, 1982). Others have suggested that the expression of emotion is inevitable, but that the parties should strive toward only expressing *positive* emotions (Kumar, 1997), since positive feelings are more likely to lead the parties toward more integrative processes, create a positive attitude about the other side, and promote more persistence (cf. Lewicki et al., 1999). However, appropriately expressed negative emotions (fear, anger) may have a powerful impact, and positive emotions can also "blind" a negotiator to the issues and make that individual more susceptible to deceptive tactics.
2. *Ethical issues.* Another aspect of negotiation strategy has to do with the extent to which actors will "bend the truth" to achieve their aims. Because negotiation is a strategic interaction, and parties are often intent on a competitive strategy in which they are attempting to win only for themselves, communications often become distorted as parties overemphasize their preferred outcomes, attack the other's preferred outcomes, and employ misleading, deceptive or outright false statements in an effort to trick the other, throw the other off track or secure undeserved concessions. In short, some negotiators may resort to "unethical" conduct in order to achieve their objectives. Recent research on the "ethics of negotiation" reveals that a certain amount of bluffing is actually seen as ethically acceptable in negotiation (Lewicki & Robinson, 1998; Robinson, Lewicki, & Donahue, 2001). Because a negotiator is expected to advocate for the best outcomes he or she would like to receive, and expects to make concessions away from that most-desired objective, negotiators don't expect the other to tell "the truth, the whole truth and nothing but the truth." In fact, hiding one's own real "bottom line" from the other party, making an opening offer far higher than one hopes to actually

achieve, and tactics such as stalling for time are actually seen as ethically acceptable and appropriate in a negotiation context (Lewicki & Robinson, 1998; Robinson et al., 2001). On the other hand, outright lies, falsehoods, deceptions and "spying" on the other to obtain critical information are seen as very ethically inappropriate. While such actions may be likely to benefit the user in the short term—and can be continued if the actions remain undiscovered—they are also very likely to lead the other to be angry and retributive when the deception is discovered. Later in the chapter, we will specifically address whether the "virtual" context of an organization is more or less likely to encourage unethical negotiating behavior.

Communication and Perception Processes

A third principle of negotiations is that it is a process of communication and persuasion. Each party is trying to convince the other to accept the validity of one's own requests and arguments. Thus, the effectiveness of a negotiation strategy is directly tied to how well one "sells" one's own point of view to the other party. In addition, how we perceive the other party's arguments and persuasiveness will affect their success in achieving their objectives. In this section, we will briefly consider how communication, persuasion and perception can affect negotiation outcomes.

1. *Persuasive communication.* Thus far, we have discussed negotiations as consisting of parties pursuing strategies to achieve objectives. These strategies are executed by parties exchanging information, facts, rationales, offers and demands. Thus, negotiation is also very much a communication and persuasion process (cf. Putnam & Roloff, 1992). One party structures persuasive communications in order to "sell" the other side that his/her views or perspectives should dominate over theirs, and they respond with counter arguments and different facts to support their position. Thus, negotiation processes can be actively studied by examining the words people use, the way that words are assembled into arguments, and the relative effectiveness of particular arguments in persuading the other side to accept one's own perspective.

   Moreover, those who have studied negotiation have learned that communication changes over time in a negotiation (e.g., Holmes, 1992). Parties move from initial introductions and statements of perspectives, to a process of explaining one's own preferences and challenging the preferences of others, to a process of "give and take" as offers and counteroffers are exchanged, and finally to a process of determining and confirming the agreement with each other.

Finally, communication processes have the potential to offer many different kinds of information about the other's preferences and priorities. Not only do parties receive the words of the message, but they are also able to receive voice intonation, emphasis, emotionality, facial gestures and body movements, all of which put the words in context and communicate the negotiator's intensity, strength of feelings, deeper emotional state, etc. As we will note in our discussion of negotiation in a virtual environment, whether parties have access to "information-rich" communication tools (the words, the body gestures, the voice and intonation, etc.) or "information-poor" communication tools (words only) can make a significant difference in how the message is received, understood and responded to.

2. *Perceptual biases.* People are imperfect communicators by nature and are prone to perceptual biases or distortions when negotiating. Specifically, a perceiver's personal needs, desires, motivations, and personal experiences may create a predisposition about the other party, which can result in biases and errors in perception and communication (Lewicki et al., 1999). These biases can take one of two forms: *generalization distortions*, by which small amounts of information are used to draw large conclusions about individuals, and *anticipation*, by which a person distorts by anticipating certain attributes in another person. For example, stereotyping, a generalization, occurs when a person assigns attributes to another solely on the basis of membership (real or purported) in a certain social or demographic group. Halo effects occur when people generalize about a variety of attributes based on knowledge of a single or limited set of attributes (Cooper, 1981). Selective perception, an anticipatory error, is enacted when a person singles out certain information that supports a prior belief, and filters information that disconfirms that belief. Finally, projection occurs when people ascribe characteristics to others that they themselves possess.

These and other related perceptual biases infiltrate the negotiation process to varying degrees. Other characteristics of the negotiation, including context, communication medium, or negotiating actors' experience with one another can either enhance or attenuate these biases. These characteristics make perceptual biases relevant to a discussion of virtual negotiations, and they will be addressed from that standpoint later in the chapter.

Individual Differences

Finally, although we have been referring to negotiators as strategic actors rationally choosing specific strategies to maximize either outcome and/or relationship goals (e.g., the five styles identified in Figure 2), there are strong individual differences among negotiators in their skills, capabilities and preferences for particular strategic approaches. Individuals differ in their preferred styles for managing conflicts with others, and these preferences may overshadow the most "rational" strategy for a particular situation. Thus, an individual negotiator whose personality is strongly competitive may tend to "over-choose" the competitive approach, even when the "rational" strategy might be to pursue approaches that put more emphasis on relationship outcomes. Research has extensively explored a number of factors, such as personality, gender, and national culture, that have been shown to strongly influence negotiator strategy and tactics (see Lewicki et al., 1999 for a review).

Summary. In this section, we have reviewed five different aspects of negotiation: elements of the negotiation context (the parties, audiences, outcomes and prevailing norms), negotiation dynamics (management of emotions and ethical issues), communication processes (strategies of persuasive communication and perceptual biases), and individual differences. These characteristics serve as a useful framework for examining the ways in which we might expect virtual negotiations to differ from more traditional, face-to-face encounters. In the next section, we specifically explore these differences.

NEGOTIATING VIRTUALLY

The modern day business world is a dynamic environment that demands flexibility and maximum efficiency in all facets of operation. Many companies are realizing the necessity of expanding operations beyond local borders, and are seeking global expansion and interfirm partnerships. Evolving from these trends is the concept of the virtual organization. Virtual Organizations have been defined in various ways, but center on the notion of people using electronic technology to work and relate at a distance to accomplish goals. For example, Snow, Lipnack, and Stamps (1999) discuss some key factors that set a virtual organization apart, including members working across space, time, and organizational boundaries.

There are a number of factors driving the move toward virtual organization. First, flatter, more horizontal organizational structures are spreading employees out, both structurally and physically. As a result, there is less hierarchy; but the absence of hierarchy creates a greater requirement that people at the same level learn to cooperate and work together in lateral relationships. Second, many new work environments require greater interorganizational cooperation as well as competition. Organizations are more likely to acquire new expertise, competencies or speed to market by partnering together with another firm in a partnership, joint venture or strategic alliance. Third, there is an increasing globalization of trade. More and more transactions with other firms occur across cultural and international boundaries. Finally, there is a continued shift from production to service/knowledge work environments with less need for co-located employees (Townsend, DeMarie, & Hendrickson, 1998). These employees have to effectively share and coordinate information with each other, but do not necessarily have to be in the same room (or even in the same city) with each other to complete that work effectively. Combined, these trends have changed many business operations from local, face-to-face transactions to more distributed exchanges. Also facilitating this transition is the growing availability of technology that allows people separated by distance to connect electronically. In particular, more recent advances in electronic mail and internet discussion forums have furthered our ability to connect, and these forums are growing in use. The nature of virtual organizations demands that members of such organizations communicate and work electronically.

In virtual organizations, negotiation between members is an important facet of daily operations. As noted in the first half of this chapter, negotiation has been traditionally viewed (and dominantly researched) as a face-to-face encounter, with known participants and fairly well established norms of behavior. In fact, most of the research and writing addresses the process from this perspective. With the changes in the business landscape described above, however, corresponding changes in some of the dynamics of negotiation are to be expected. As the electronic world has expanded, we see more negotiations being conducted "at a distance"—by telephone, videoconference, email or chat room—and less face-to-face. In this section, we will review the small amount of research that been performed on virtual negotiations, and draw implications for the practitioner negotiating in these new contexts.

As noted above, some research has examined the benefits and drawbacks of face-to-face vs. virtual negotiations. However, many of these studies have tended to simply focus on the impact of a more limited number of communication channels on negotiation process and outcomes (e.g., the consequences of not being able to see or hear the other). For example, studies have generally demonstrated a higher impasse rate in written or email negotiations (e.g., Barsness & Tenbrunsel, 1998; Valley, Moag, & Bazerman, 1998). Also, non face-to-face negotiations have generally led to less efficient outcomes, less mutually beneficial outcomes, but equally integrative agreements, compared to face-to-face negotiations (Purdy, Nye, & Balakrishnan, 2000; Rangaswamy & Shell, 1997; Valley et al., 1998). Earlier studies using face-to-face versus isolated negotiators tended to demonstrate mixed results with regards to integrativeness (Carnevale & Isen, 1986; Carnevale, Pruitt, & Seilheimer, 1981; Lewis & Fry, 1977; Wichman, 1970). For example, Carnevale and colleagues reported less integrative outcomes among face-to-face than separated negotiators who were still able to speak. Results from Lewis and Fry (1977) also suggest that a lack of visual access may increase the integrativeness of outcomes, although their subjects also were allowed to speak to one another. On the other hand, Wichman (1970) reported the most integrative outcomes when subjects negotiated face-to-face, and the least integrative when subjects were completely isolated (i.e., couldn't see or hear each other). So, as the reader can see, the early results are mixed and often contradictory.

Although these findings are important, we, along with others (e.g., Griffeth & Northcraft, 1994), believe that the question of whether virtual negotiations are different from face to face negotiations needs to be examined more closely. Specifically, earlier studies tended to simply study the impact of limiting the number and type of communication channels on processes and outcomes (e.g., the consequences of not being able to see or hear the other). While the communication channel is a central characteristic of virtual versus face-to-face negotiations, there are a number of other psychological dynamics and contextual issues that are useful and important to study.

The following discussion will highlight some of these key elements. Specifically, we follow our earlier framework in highlighting four main areas of interest. These principles are illustrated in the model presented in Figure 3. First, beyond the obvious difference in channel, other aspects of the negotiation context are likely to differ in a virtual organization as compared to a traditional organization. Second, certain aspects of the "give and take" of negotiation are likely to differ. Third, communication dynamics in face-to-face versus virtual environments have received considerable research attention, and we will discuss their relevance to virtual negotiations. Finally, individual differences among negotiators are likely to affect virtual negotiations. We examine some of these differences, noting why the virtual nature of the negotiation makes them potentially important. We conclude the chapter with some implications for practitioners.

Context of Virtual Negotiations

As discussed earlier, negotiations occur in a rich and complex context that has a significant impact on how parties interact and how the process evolves (Lewicki et al., 1999). We turn now to a discussion of how some of

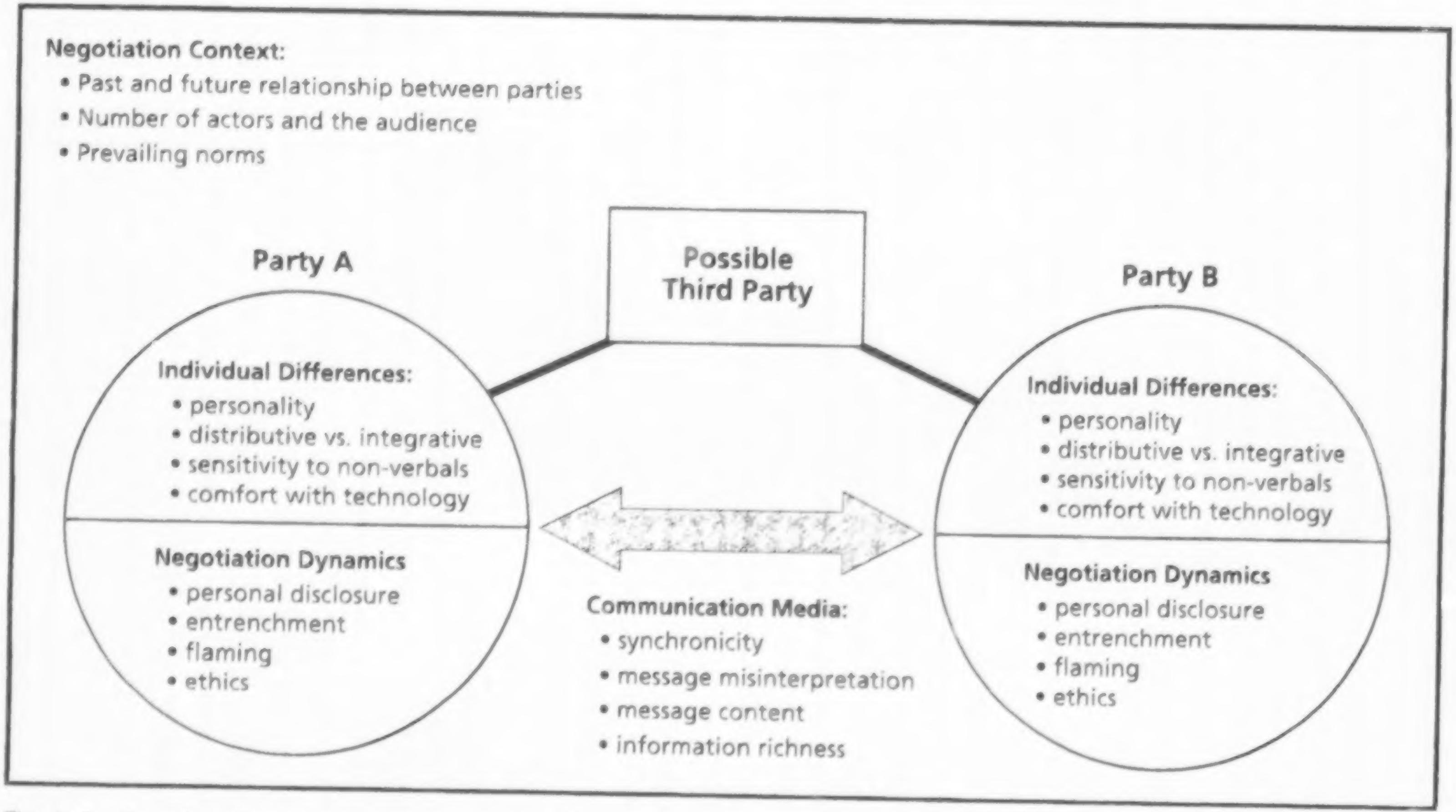
Negotiation Context:
• Past and future relationship between parties
• Number of actors and the audience
• Prevailing norms
Party A
Individual Differences:
• personality
• distributive vs. integrative
• sensitivity to non-verbals
• comfort with technology
Negotiation Dynamics
• personal disclosure
• entrenchment
• flaming
• ethics
Possible Third Party
Communication Media:
• synchronicity
• message misinterpretation
• message content
• information richness
Party B
Individual Differences:
• personality
• distributive vs. integrative
• sensitivity to non-verbals
• comfort with technology
Negotiation Dynamics
• personal disclosure
• entrenchment
• flaming
• ethics

Figure 3. A model of virtual negotiation characteristics.

these contextual factors are likely to differ in a virtual (vs. face-to-face) environment.

1. *Prior and future relationship between parties.* Prior relationship between parties is a particularly important contextual element affecting virtual negotiations. In particular, research has suggested that in a virtual negotiation, a prior face-to-face encounter may be beneficial to avoiding impasse and negotiating higher joint gains (Drolet & Morris, 2000; Maruca, 2000; Moore, Kurtzberg, Thompson, & Morris, 1999). The increased importance of a prior relationship is clear when one considers the fundamental difference between the two types of encounters.

   First, in a face-to-face situation, negotiators immediately establish some sort of interpersonal contact during the first few minutes. They gather preliminary information about the other from reading facial expression, eye contact, body position, clothing and tone of voice. Even simple demographic information—age, gender, race, socioeconomic status—can be discerned immediately and used to make assumptions and inferences. The consequences of not having had a prior meeting may fade quickly. For example, a negotiator may have a preconceived notion that her counterpart is a peer, only to find out upon meeting him that he is quite a bit older.

   In a virtual negotiation, on the other hand, parties may never see each other. Therefore, preconceived notions such as a counterpart's age may prevail throughout the negotiation given no prior relationship—or, these notions may be absent, allowing the negotiator to focus on the specific issues at stake. So, whereas there may be differences between face-to-face negotiations in which (a) parties have met previously and (b) parties have not met, these differences are not likely to be as substantial as those in which virtual negotiators do or do not have a prior face-to-face meeting.

   Although a prior meeting between virtual negotiators may be beneficial, such a meeting is not always feasible. Further, some have argued that the benefits of a previous meeting may not be as great as previously thought (e.g., Nunamaker, Dennis, Valacich, & Vogel, 1991). When virtual negotiators have never met, certain types of information remain veiled. The degree of anonymity between the parties of a virtual negotiation has received a fair amount of research attention. For example, Nunamaker et al. (1991) found that anonymity allowed personalities to be separated from issues, promoting more objective evaluation of issues and interests, and generation of options for settlement. Others have suggested that virtual negotiations "level the playing field" by eradicating status differences (Croson, 1999; Kiesler & Sproull, 1992; Poole, Shannon, & DeSanctis, 1992), which in turn can promote more objective evaluation of issues and increased option generation (Nunamaker et al., 1991). However, while anonymity may allow for more equal participation, it may not necessarily lead to equal influence (e.g., McLeod, Baron, Marti, & Yoon, 1997). And, although both face-to-face and virtual actors tend to enact stereotypical representations of counterparts that suit their needs or wishes, and match those representations to particular strategies, (Landry, 2000), virtual stereotypes are more likely to be retained in the absence of visually disconfirming evidence. Therefore, stereotypes enacted in a virtual environment may be even more detrimental to the negotiation than face-to-face stereotypes.

Finally, it is important to remember that anonymity should be thought of as a continuous variable (Nunamaker et al., 1991). That is, a person is not just "anonymous or non-anonymous," but rather can be anonymous on some characteristics (e.g., age, height) but not as anonymous on others (e.g., gender, race, socioeconomic status). There is greater probability of experiencing varying levels of anonymity in a virtual negotiation. However, the particular features of anonymity that are salient and important in a particular negotiation will vary from case to case.

2. *Audience knowledge.* Earlier in the chapter, we noted that many negotiations are conducted in front of "audiences"—constituents who the negotiator may report to, and who are either directly or indirectly impacted by the outcomes of the negotiation. In a virtual negotiation, knowledge about the audience can be more difficult to ascertain. While the audience is usually fairly apparent in a face-to-face situation, in electronic deal-making, the specific audience may be more unknown (i.e., you may not know how many other members of the other party are listening in, or their rank, seniority, priorities, etc.) (Carnevale & Probst, 1997; Martovani, 1994). This may take away from any additional benefits gained from the effects of a "level playing field" described previously.
3. *Negotiation norms.* Negotiation norms are an important contextual factor likely to differ considerably in a virtual negotiation. Some have even considered norms to be more important in a virtual environment (e.g., Martovani, 1994). This may likely be the case because norms are largely still in their formative stages with regards to electronic interaction. For example, Carnevale and Probst (1997) have highlighted the fact that norms for new technology such as email have yet to be fully worked out. This evolving "ethos" of how people should or should not behave and act electronically will likely continue to yield wide variance in behavior for the foreseeable future as norms develop. Also, there

exist fairly established ways of expressing emotions (such as discontent) in a face-to-face negotiating context, whereas expressing discontent online may take on a different meaning to both the sender and receiver of a message. Finally, norms of reciprocity are somewhat more rigid in an electronic environment (e.g., Maruca, 2000). For example, among two people negotiating via email, there is a strong tendency to "wait until you receive a reply" before making your next point or counteroffer, whereas in a face-to-face situation, "turn-taking" is not as rigid. That is, in a face-to-face negotiation, negotiators are more likely to communicate information "on the fly," whenever there is a lull in the conversation, or whether the other does not respond favorably, rather than religiously waiting their turn.

Negotiation Dynamics in the Virtual Environment

Some of the fundamental dynamics and means of interacting between negotiators are likely to differ in the virtual situation. We focus on four such characteristics that appear to be most relevant: degree of personal disclosure, position entrenchment, use of "flaming" (i.e., intimidating or menacing use of words or phrases), and the use of unethical and/or deceptive techniques.

1. *Degree of personal disclosure.* A number of researchers have noted a tendency toward less inhibition when a person communicates electronically. In particular, Poole et al. (1992) noted that more self-disclosure is likely. This makes sense, given the "level playing field" effect described earlier. When people feel that they are on equal footing with a negotiating counterpart, they may exhibit more of a tendency to self-disclose. Also, the existence and nature of a prior relationship might influence a negotiator's willingness to self-disclose. In a negotiation context, it is likely that increased self-disclosure will facilitate issue identification and lead to more integrative outcomes or less incidence of impasse (Moore et al., 1999).

   However, as Landry (2000) notes, more extreme position entrenchment may result from the tendency toward "disinhibition" in a virtual context. That is, virtual negotiators may feel more confident in standing by their positions, may be less likely to "back down," and less likely to give in to pressure during negotiations because they are not subject to the direct, evaluative scrutiny of the other party in the face-to-face context. This suggests that virtual environments could be particularly problematic for distributive negotiations. We continue below by developing this idea of position entrenchment further.

2. *Position entrenchment.* Position entrenchment, or rigidity, refers to unwillingness on the part of negotiating parties to back down from a stated position. Past research has recognized many factors that lead to increased position rigidity, such as when positions are put in writing (cf. Poole et al., 1992). Since virtual negotiations are usually text-based, and can be archived, this may be a valid concern; it may simply be harder to back down from a prior written statement, and there may be an increased tendency to try to "trap" the other in their earlier words. Also, as we note in the next section, virtual negotiations often occur in an *asynchronous* manner—that is, the "turn taking" between offers and counteroffers is not as regularly paced as face-to-face deliberations.

   Thus, virtual negotiations may lead to entrenchment due to the "lag time" between correspondence. Specifically, a person may become more attached to a position and have more time to internalize that position as time elapses between contacts with a counterpart. If there is a delay in the other responding—simply because of electronic traffic or the other's unavailability to respond, entrenchment may grow. Perhaps this might help explain the prevalence of findings indicating higher rates of impasse in virtual negotiation (e.g., Barsness & Tenbrunsel, 1999). On the other hand, though, it is possible that a lack of face-to-face contact could *decrease* rigidity (Poole et al., 1992). For example, it may be easier to "save face" when backing down from a position if one's counterpart is not physically present; if embarrassment and loss of face increases entrenchment (Brown, 1968), minimizing embarrassment may be able to reduce it.

3. *Use of flaming tactics.* Another consequence of disinhibition may be the increased propensity toward "flaming," or "rude, compulsive behavior and the expression of extreme views in an electronic network" (Kiesler & Sproull, 1992). Considerable evidence points toward an increased likelihood of flaming in a virtual environment (e.g., Kiesler & Sproull, 1992; Poole et al., 1992)—although some disagree (Martovani, 1994). Moreover, these findings are likely to be understated, given that they came from research studies in a laboratory context with parties who were role playing a dispute and probably lacked the level of emotional investment often found in real-life negotiations with real-life outcomes. As a negotiating strategy in a virtual environment, flaming could be used as a form of intimidation to push for one's preferred alternative, or to rebut and demean the other's offer. Although a similar strategy could also be used in a face-to-face context, its prevalence is enhanced in a virtual environment because the party is protected from the negative disapproval one may encounter face-to-face.

4. *Ethical issues.* Finally, researchers have begun to examine the different uses and effects of deception in a face-to-face and virtual negotiating environment. For example, Fortune and Brodt (2000) found that an email negotiation led to less post-negotiation trust and more suspicion of deception than a face-to-face negotiation. Prior experience with the other party decreased, but did not eliminate, these levels of deception. This result is probably due to the tendency for people to think that they can "tell when someone is lying" in a face-to-face situation, whereas these judgments are harder to make virtually. Also, as Valley et al. (1998) and Thompson (1998) note, face-to-face situations seem to compel negotiators to be honest and cooperative to a greater degree than non face-to-face situations.

   However, Schweitzer, Brett and Croson (2000) argue that negotiators exhibit more of a propensity to lie in face-to-face situations. They claim that this is due to a need to monitor the counterpart's reaction to ensure that the lie is "having its intended effect." Indeed, deceiving in a virtual environment can leave the deceiver wondering if his/her counterpart is "buying into" the deception. A humorous example can be provided from the senior author's own experience. Earlier in his career, Lewicki was working on an edited book of essays with another co-author (Max Bazerman). They had not discussed the order of authorship on the book, but needed to do so. Bazerman was in Massachusetts, Lewicki in North Carolina. In a phone conversation, Bazerman suggested flipping a coin. Lewicki asked how they would verify the outcome if only one could see the coin. Bazerman suggested that Lewicki could be in charge of both flipping and verification. Lewicki flipped the coin, and announced that he had lost (thereby making Bazerman the first author). While Lewicki may have gained Bazerman's trust by being honest, he also lost the opportunity to exploit the situation and become first author because Bazerman could never verify the flip—but then forever wondered whether Bazerman would really have believed the deception! (Bazerman & Lewicki, 1983, p. 9).

In sum, the evidence regarding deception tendencies in a face-to-face versus virtual environment is mixed. At a minimum, negotiators should be alert to the potential for "virtual deception" while also realizing that face-to-face environments still are ripe for attempts to deceive.

Communication Processes in a Virtual Negotiation

Communication is at the heart of the negotiating process. Through communication, other key parts of a negotiation such as strategizing, planning, and preparing are enacted (Lewicki et al., 1999). Research on communications in face-to-face versus electronic environments is multiplying, yet more work needs to be done. We highlight some of the key communication dynamics that are likely to differentially affect a face-to-face versus a virtual negotiation, including asynchronicity vs. synchronicity, message misinterpretation, message content, and information richness.

1. *Synchronicity.* By definition, face-to-face negotiation is a synchronous process, with both parties sending and receiving information in "real time." Alternatively, virtual negotiation can take place in either a synchronous or asynchronous manner. A number of researchers have examined the impact of each of these processes on various outcomes. For example, negotiation using written communications (which are generally asynchronous, in that the response may be seriously delayed by thinking and writing it out) has been shown to lead to higher rates of impasse (Valley et al., 1998). Asynchronous negotiation also may have detrimental effects on coordination and solution analysis, although it also may act to slow down the process, force reflection, and prevent premature solutions (Poole et al., 1992).

   Another possible effect of asynchronicity has to do with the asking of questions/clarifications during negotiation. Whereas a negotiator may feel little hesitation in asking for clarification or extra information in an ongoing, synchronous situation, the thought of crafting the question, being clear about the specific ambiguity—especially to a seemingly trivial clarification—and waiting for an answer may dissuade the person from coming forth with the question (and incurring the associated "wait time") in an asynchronous situation. This could have effects on both the process and the ultimate outcome of a negotiation.

   A final area of interest regarding the differences between synchronous and asynchronous information exchange relates to what we term *feedback tracking.* For the most part, in a synchronous interaction, parties can actively track feedback from a counterpart, both verbal and nonverbal (if face-to-face), and adjust their stance incrementally as the interaction proceeds. In an asynchronous situation, on the other hand, feedback is broken rather than continuous, with no chance to adjust "midstream." An example may better illustrate this point. Consider a recruiter negotiating a salary offer with a highly sought-after job candidate. In a synchronous situation, the recruiter can monitor the candidate's nonverbal reactions to the pay and benefits offers, and possibly make quick adjustments to these offers depending on whether the candidate's reaction seems positive or negative. In making a similar offer over email, however, the recruiter loses the chance to make such "midstream" adjustments.

Of course, there is a likelihood of misreading the reactions or feedback of a negotiating counterpart midstream, leading to misguided adjustments. This relates to our next communication issue.

2. *Message misinterpretation.* Message interpretation and misinterpretation is a major problem in virtual versus face-to-face situations. Related to our preceding points regarding asynchronous versus synchronous communication, a misinterpretation during an asynchronous negotiation has the potential to "balloon" over time. Specifically, when the misinterpretation is allowed to fester uncorrected, and the other party does not have a chance to quickly correct it, an anchoring effect may occur whereby the person misinterpreting the information begins to "anchor onto" a misunderstanding or an incorrect attribution—an attribution that may be harder and harder to change as time goes by. Hence, "failure to exchange information may result in attributing extreme motives to the other party, especially in the absence of corrective feedback" (Poole et al., 1992, p. 57). This attribution offers another possible explanation for the higher rates of impasse typically found in virtual negotiations. Indeed, as Landry (2000) notes, impasse is often due more to failure to reach closure than to failure to generate sufficient alternatives. Also, as previously discussed, virtual negotiators may be more reticent to ask clarification-type questions in the interest of time and having to wait for an asynchronous response.

   On the other hand, virtual negotiation does also hold some promise for avoiding misinterpretation or even enhancing correct interpretations. For example, it is harder to practice selective perception, or filtering of disconfirming evidence, when all communication is documented, as is often the case in virtual negotiations (e.g., email files). Also, research has shown that people pay more attention to the substantive content of electronic text messages than to message content communicated verbally. This potentially holds promise for increasing problem solving and thinking processes during virtual negotiation (Shell, 1995), and appears to stem from people being more "on their toes" with regards to virtual communications (Poole et al., 1992). In other words, the novelty of virtual interaction raises the salience of the content of the communication, causing parties to pay more attention to it.

3. *Message content.* A number of researchers have noted that subtle, yet potentially important, differences exist in the message content of virtual versus face-to-face communication in general. These differences likely extend to negotiating situations in particular. First, while parties interacting face-to-face often spend some time getting to know the other before negotiating, oftentimes parties to an electronic

interaction refrain from these pleasantries (e.g., Maruca, 2000). For example, the small talk that normally precedes a meeting or negotiation session is often missing from email interaction, which decreases the familiarity and attraction the parties may feel for each other. Furthermore, the total amount of information transmitted tends to be less in a virtual context (Poole et al., 1992). Also, since it is usually text-based, virtual negotiation may have more of the tone of "strident demands" to it (Landry, 2000) and thus may be perceived as more confrontational by some. Finally, emotionality is largely absent in virtual communications (Barry & Oliver, 1996). This is primarily due to a lack of nonverbal cues, and could alter the process and outcomes of a negotiation. It would seem that whether the emotion is positive or negative makes a difference. Thus, if the emotion is negative, replacing an emotional frame with a more impersonal frame might lower inhibitions, foster directness and the expression of differences, and ultimately lead to greater integration and rationality in decisions (Poole et al., 1992). However, it is also likely that the emotions surrounding a negotiation do not simply dissipate with the introduction of a virtual context, but rather get misinterpreted or misplaced.

4. *Information richness.* Information richness refers to the amount of information that can be conveyed through a medium (Daft & Lengel, 1984). For the most part, virtual negotiation lacks the degree of information richness found in face-to-face contexts. For example, speed of information transfer largely favors face-to-face over electronic. Also, problems may arise when the negotiation problem is complex and requires use of supplemental material (such as product prototypes or extensive charts and graphs). Although technology has come a long way in facilitating transfer of material electronically, the ease of that transfer and the prowess of negotiators to effectively employ it is far from assured. Addressing this issue, Frohlich and Oppenheimer (1998) note that the effects of email versus face-to-face negotiations likely vary depending on the nature of the decision required, the complexity and content of what needs to be communicated, and the style employed. In a related vein, Purdy and colleagues (2000) found that collaborating styles occured more in "rich" (face-to-face) negotiation than in less rich media (e.g., telephone or computer chat). Moreover, collaboration attempts were more correctly perceived in the face-to-face condition. However, in a somewhat mixed finding, no greater profits were realized in the face-to-face condition, but reductions in the inequity of profit distributions and greater time efficiency were realized in the richer face-to-face media. In sum, greater information richness does not necessarily translate directly into more or

less optimal negotiations (Poole et al., 1992). Rather, outcomes are more directly affected by style of communication, which tends to evolve from the richness of the medium chosen. Therefore, although not exerting direct effects, information richness remains one of many important variables in need of consideration when approaching a virtual negotiation situation.

Individual Differences Important to Virtual Negotiations

Although individual differences are a key element in any negotiation situation (Lewicki et al., 1999), there are a number of individual differences among negotiators that may be particularly more or less important when negotiating virtually. First, a number of personality characteristics might be less important in a virtual environment. For example, extraversion is likely to be veiled in a virtual environment—parties who speak a great deal and dominate the verbal conversation may be more constrained, while introverts—who often express themselves better in writing—may thrive. Second, researchers have differentiated between the collaborative and competitive orientations described earlier in this chapter. For example, Lewis and Fry (1977) found that collaboratively oriented ("problem-solving") people performed the same when negotiating with and without a barrier between them and the other, whereas competitively-oriented people did better when a barrier was in place. Also, researchers have examined people's sensitivity to nonverbal signals. The PONS scale (Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979) is a common assessment instrument used to gauge this construct. Basically, some people depend on nonverbal signals more than others in interpreting communication. Success in a negotiation may hinge on the ability to "read" the other party, an ability that may be hampered if sensitivity to nonverbal signals is high. Another set of individual difference variables has to do with negotiators' comfort with the technology they are trying to use. Individual self-efficacy (Gist & Mitchell, 1992) for using that technology could be important. For example, a negotiator with a lower self-efficacy toward the technology may be distracted by trying to operate the technology successfully instead of focusing on the negotiation as it unfolds.

IMPLICATIONS AND CONCLUSION

A number of interesting implications can be drawn from our discussion of the changes we may expect when negotiations become virtual. There are clearly strong implications for practitioners who want to negotiate effectively in a virtual environment, and researchers who are interested in pursuing important questions and strengthening the quality of work that can be done in this area. Because this book is primarily directed toward practitioners, we will devote our attention to the implications for negotiation practitioners.

In this section, we will try to summarize the major implications from the research that we presented earlier. We will try to cover only the most important principles, although more could be generated from the work already done. We have decided to present this as a chart, so that the rules will stand out clearly. Also, it is important to state that it is our assumption that *the negotiator intends to approach the negotiation collaboratively, or integratively.* That is, the negotiator wants to establish a solid cooperative relationship with the other and work toward an agreement that assures mutual gain. If the negotiator intends to pursue a competitive strategy, then the "inverse" of some of these principles would apply, because the negotiator should be considering how to gain competitive advantage over the other, and maximize ONLY on his/her outcomes, rather than work toward joint gain. We briefly describe these principles below, and list them in Table 1.

Table 1. The Top Ten Rules for Negotiating in a Virtual Environment

1. Create a relationship face-to-face before the process begins, or early in the negotiation. Put a face or voice behind the email or faxes.
2. Be explicit about the normative process to be followed during the negotiation.
3. If there are other parties present in a virtual negotiation—either on your side of the table or theirs—let the other know who is there and why.
4. Virtual negotiations may be particularly good for creating and clarifying the agenda, and for getting new issues onto the table. Pick the medium (face-to-face, videophone, voice, fax or email, etc) that is most effective at getting all the information and detail on the table so that it can be fully considered by both sides.
5. Avoid virtual "flaming"; if you have to express emotion, label the emotion clearly so the other knows what it is and what caused it.
6. Don't assume turn-taking; but as much as possible, synchronize offers and counteroffers, and ask questions of the other if it is not clear "whose turn it is."
7. Check out any inferences and attributions you are making about the other's offer, demands, proposals or conduct. Ask questions. The less face-to-face information you have about the other, the more likely it is that inferences will get you in trouble.
8. Be sensitive to "entrenchment" in virtual negotiations and talk about it if it is happening.
9. While it may be easier to use unethical tactics in a virtual negotiation, the consequences of doing so may be more severe.
10. Try to understand how your own personal preference for a style (collaboration, competition, etc.) fits the communication medium you select.

1. *Create a relationship face-to-face before the process begins, or early in the negotiation. Put a face and voice behind the email or faxes.* This is a very important principle. The more likely the other has established a personal relationship with you in the past, or will see you again personally in the future, the less likely they will be to use the virtual environment to exploit or take advantage of you in the diminished communication context.
2. *Be explicit about the normative process to be followed during the negotiation.* As noted by Kolb and Martin (2000), experienced negotiators must be effective in keeping track of the substantive issues under discussion as well as the process by which negotiation is taking place. Failure to exert some direction and control over the process will allow the other to take charge of the process (and adapt it to their advantage), or the process will become subject to the constraints of the environment in which it is occurring. Not only should you know how you would like the process to work, but you should state these expectations very clearly to the other, get their consent and agreement, and monitor whether these rules are being followed as you actually negotiate the issues. Many of the other rules that follow build off this principle.
3. *If there are other parties present in a virtual negotiation—either on your side of the table or theirs—let the other know who is there and why.* In face to face negotiation, we know who else is at the table, or who the opponent may be talking to in caucus sessions, etc. In virtual negotiations, we may assume that all the communication is confidential, only to discover that other people also have been reading, listening in, etc., without our knowledge. Moreover, hiding this information could be viewed by the other as highly deceptive, and could cause them serious embarrassment if they said something without knowing who else is present. Be clear to the other who else will see or hear the communications, and ask about these issues on their side as well.
4. *Virtual negotiations may be particularly good for creating and clarifying the agenda, and for getting new issues onto the table. Pick the medium (face-to-face, videoconference, voice only, fax or email, etc.) that is most effective at getting all the information and detail on the table so that it can be fully considered by both sides.* In the earlier review of research, we tried to be clear about how a given medium presented certain advantages and disadvantages. Negotiators should intentionally try to think through what issues should be discussed face-to-face, what can be exchanged by fax and memo, etc.
5. *Avoid virtual "flaming"; if you have to express emotion, label the emotion clearly so the other knows what it is and what caused it.* Negotiations

often get emotional. In virtual negotiations, particularly email, emotion can be strongly expressed without the other party knowing what caused it. Moreover, the emotion is rekindled every time one reads the email. So there are two principles here. First, if you are emotional, it is better to express it face-to-face or via telephone, where it can be expressed and dealt with, and the parties can hopefully move on. If you need to express it in fax or email, label what the emotion is and what caused it. Thus, instead of sending another an email that says "You jerk! %$#@^&%", a more appropriate response would be, "The last line on your previous email made me very angry. I was upset that you started talking about an issue I thought we had resolved six months ago…"

6. *Don't assume turn-taking; but as much as possible, synchronize offers and counter-offers, and ask questions of the other if it is not clear "whose turn it is."* We noted that in certain types of virtual negotiations, there can be long periods of lack of communication between the parties. When this happens face-to-face or over the telephone, we sense the other thinking, crafting a response, etc. When it happens virtually, we don't know whether the other has gone out of town and won't be back in three days, or wants to think about it over night, or that his mail server crashed and he didn't even get the message. Don't assume that because you haven't heard back from the other in a reasonable period of time, that this means it is your turn to make another concession! Ask questions, have them clarify their lack of response, or try to call or meet face to face to clarify ambiguities.
7. *Check out any inferences and attributions you are making about the other's offer, demands, proposals or conduct. Ask questions. The less face-to-face information you have about the other, the more likely it is that inferences will get you in trouble.* This is similar to the previous point. As you don't want to assume "synchronous" processes long distance, don't assume that they are angry, upset, delighted, or confused. Assumptions get people into trouble in face-to-face encounters, and can cause even more trouble in a virtual environment. Again, ask questions about their reactions, mood, current mind state, etc. and offer them ample time to respond.
8. *Be sensitive to "entrenchment" in virtual negotiations and talk about it if it is happening.* Because many offers are written out in detail, a competitive negotiator might try to "nail" her opponent in either the ambiguous or incomplete language used to express those offers, or in the exact wording of an initial bargaining position. Don't let this happen to you, and don't treat the other in this manner. The parties should discuss and clarify until all agree.

9. *While it may be easier to use unethical tactics in a virtual negotiation, the consequences of doing so may be more severe.* Because it is more difficult to monitor events, the accuracy of communication, etc. in a virtual environment, competitive negotiators may be more likely to try to "get away with" statements, arguments, etc. that can't be easily verified by the other. Like face-to-face negotiations, integrity and trustworthiness in the virtual environment are essential for open communication. If one uses unethical tactics, one may be able to get away with them in the short term, but may suffer the other's revenge if and when he discovers that he has been duped. Additionally, many virtual negotiation exchanges are automatically documented (e.g., email files), thus providing potentially incriminating evidence of unethical behavior.
10. *Try to understand how your own personal preference for a style (collaboration, competition, etc.) fits the communication medium you select.* Finally, as we stated earlier, our assumption here is that you as the negotiator wish to pursue a more collaborative negotiation approach, *and that your opponent wishes to do so as well.* If you intend to be competitive, it should be clear how you can adapt some of these principles and use them to your advantage. But more importantly, if you suspect that your opponent may be doing this, you should be ready to carefully monitor his behavior and to actively "call him" on any actions or behaviors which you consider suspicious and which are not in the interest of joint gain.

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Part IV

CASE STUDIES

Although cases of human resource management practices in virtual organizations have been presented throughout the book, this part of the book provides some more detailed case studies. Wang (Chapter 12) examines how E-commerce has impacted organizational structures are HRM practices in the banking industry in China. Crandall and Wallace (Chapter 13) describe how the creation of a virtual organization structure for the orthopedic division of Smith and Nephew led to the need and creation of new HRM systems to support the virtual organization structure.

CHAPTER 12

HRM STRATEGIES IN MANAGING VIRTUAL ORGANIZATIONS IN CHINA

A Case Analysis of Banking E-commerce Projects

Zhong-Ming Wang

ABSTRACT

With the rapid IT development, the structure and process of Chinese organizations are more and more affected by those technical, business and managerial innovations such as E-commerce. Virtual teams and organizations are increasingly adopted in various kinds of E-commerce projects. Given the flexibility and mobility of the virtual organizational structure, new features of HR management strategies are demonstrated in recent Chinese practices. This chapter describes the characteristics, processes and HRM strategies of the virtual teams and organizations, using three cases of cross-functional project teams in the Chinese banking E-commerce development. Several HRM strategies are adopted in solving some key issues in virtual organizations: (1) Strategic objectives setting a process for long-term orientation; (2) Task team regrouping for team compatibility; (3) Competence mentoring for networking and result-orientation; (4) Interactive communication and leadership knowledge sharing mechanism. The case analysis illustrates the effective HRM strategies and discusses their implications in managing virtual organizations.

INTRODUCTION

As it is happening in other parts of the world, the IT such as computer networks and distributive communication technology are rapidly changing the structure and process of various organizations in relation to production, service, education, economic development and all aspects of social life in China. Since the late 1990s, internet-based E-commerce development has been popular in the large cities of China, which has promoted the "paperless" trading and transactions in several key industrial sectors. A "business to customer" direct transaction model is increasingly adopted in replacing the traditional transaction practice and functions. More and more "on-line" business transactions have been carried out between business and governmental departments, such as on-line bidding of projects and on-line purchasing. There are also efforts to develop "customer to government commerce" linkages in the areas such as social welfare, pension and taxation in China. However, there are still problems for rapidly developing E-business and managing virtual organizations in China. Ding (2001) summarized several important obstacles:

1. Infrastructure is not ready for a nationwide E-business operation;
2. Personal credibility system is not established;
3. E-commerce market development is relatively slow;
4. Personnel structure needs to be optimized in terms of on-line business expertise and network competence;
5. Operational strategies and business procedures need to be formulated.

Those recent developments provide opportunities for E-commerce and lead to rapid organizational changes and active innovations especially in the service industry (Jackson, 1999; Wang, 2001). The development of E-commerce has had significant impact upon all the aspects of banking industry; not only reduced intermediate and transaction costs, shortened inventory and production cycle with new practice of "zero inventory," and "on-line marketing and service" but also enriched flexibility of supply and sales. This of course affected the way of developing strategic alliances between banks and enterprises. The key process of E-commerce is perhaps the on-line electronic payment. As various security techniques, agreements, systems and relevant laws and regulations are improving, more and more Internet banking, electronic payment systems, electronic check books and transaction services are becoming available. In the last two years, as the government implemented a major reform in terms of decentralization, commercialization and downsizing administrative offices, a number of State-owned banks have transferred into commercial banks. A rapid development of "non-paper office" and E-administration has been promoted in governmental management and the monitoring of various financial institutions and companies.

Changes in Organizations and Team Management

The recent developments in IT applications have also changed the traditional way of organizing and grouping in the Chinese organizations. We need new HRM strategies for effectively managing new forms of organizations. Traditionally, Chinese organizations were highly centralized under the central planning system. It took almost 20 years' efforts of economic reform to try to decentralize the organizations but still difficult to change. With the rapid development of IT and E-commerce, most industrial organizations have introduced the concept of delegation, virtual and flat organizations (Wang, 2001). However, a "middle-management syndrome" has largely resisted this change, i.e., having a larger bureaucratic middle management with difficult coordination and communication. The recent IT changes have promoted the networking organizations and the new product/project development across organizational boundaries (Harris, Coles, Dickson, & McLoughlin, 1999). Therefore, one of the most significant impacts of IT development on the Chinese economic systems and organizational behavior has been the change of centralized organizational structure and leadership behavior into distributive management system and strategic human resource management (Wang & Mobley, 1999).

Another clear change in the Chinese organizational structure is the new form of distributed teams and virtual organizations, especially in the banking industry. While the Chinese tradition favored the face-to-face close interpersonal relationship development, the virtual organization has reflected the change toward an on-line open communication and coordination relationship building. Under the IT applications and E-commerce projects, tasks are of multi-expertise and cross-functional nature and require several departments in one organization or even a number of organizations to collaborate with each other on joint projects. Therefore collaborative networking becomes necessary for HRM in the virtual organizations and the workplace of the future (Harris et al., 1999; Townsend, DeMarie, & Hendrickson, 1998).

A virtual organization involves collaboration and teamwork between a geographically and temporally separated workforce as well as joint project teams by members from different organizations (Hammer & Champy, 1993; Lipnack & Stamps, 1997; Wang, 2001). Under the virtual organizational context, the nature and dynamics of teamwork are different from that of the conventional work situations. Therefore, under the rapid development of IT and business change, virtual organizations have shown significant new features, especially in those information and knowledge-based organizations. It was estimated that by 2003, 50% of virtual organizations will fail to meet either strategic or operational objectives due to the inability to manage distributed workforce implementation risks while by 2004, 60% of the professional and management tasks at Global 2000 companies will be done via virtual teams and organizations (Biggs, 2000). In general, under the virtual organizational situation, what are the main issues and problems? What are the recommended HRM strategies in managing virtual organizations? What implications could we draw from the recent Chinese practices? In the following sections, the chapter describes three recent cases of virtual organizations in the Chinese banking E-commerce projects so as to provide some evidence to the above questions.

CASE 1: INTERACTIVE COMMUNICATIONS AND MULTI-TEAM ORGANIZATIONAL COORDINATION

Project Background

The Provincial Bank (PB) is a large state-owned commercial banking institution. At present, it has more than 1200 branches with nearly 10,000 employees. The computer network system of PB was developed and established in 1995. In 1998, the software of this network system was renewed. The system adopts a distributive focus-processing model and could not adapt to the needs of E-commerce development in the banking industry in China. In recent years, in order to adapt to the needs of developing modern banking business, the PB leadership has realized that it would be important to establish a customer-oriented banking service system so as to combine domestic and overseas savings, credit cards service with cross-city transaction and accounting for safety, centralized, standardized and convenience. Therefore the PB decided to develop a New Generation Comprehensive Business System (NGCBS) with the new features for E-commerce. After a series of bidding process, both China Groupware Computer Technique Service (CGCTS) and Beijing Advanced Digital ST Ltd. (BADST) were selected to work collaboratively with the PB in developing the NGCBS. Altogether, more than 60 technicians and managers participated in the project and were organized as a virtual project team (or virtual project organization). The project work lasted for 10 months.

The NGCBS project was carried out under a network team structure of combining functional management with matrix task groups. Supervisors from the departments of science and technology, accounting, and retail management at PB became members of the project management team (PMT) and worked jointly as project managers. Under the project management team, there were two groups: the general design group and a supply and maintenance group. The general design group was organized by technical supervisors from the three organizations (PB, CGCTS, and BADST) to be responsible for the project planning and task coordination. Besides, based on the business functions, the project organized five task groups and one supply group: a general accounting group, financial accounting group, savings loan group, public data group, front exchange group, and supply/maintenance group. All members of the NGCBS project were assigned to each of those task groups according to their ability and technical expertise to jointly complete tasks of analysis, design and development. Figure 1 and Table 1 present, respectively, the virtual project organizational chart and the composition of project members.

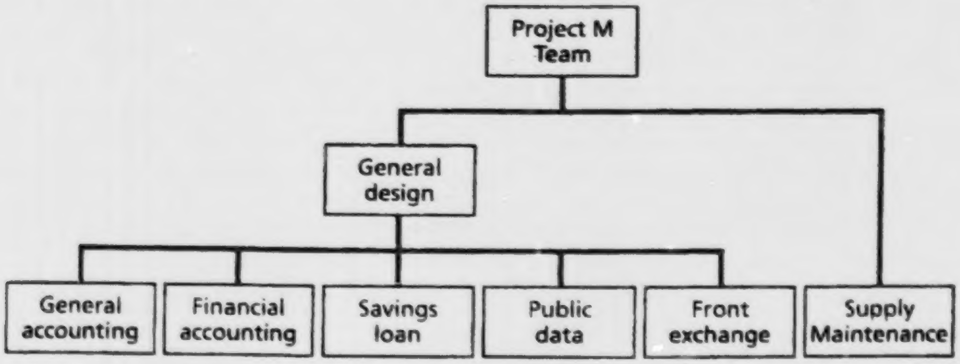

Figure 1. "New generation comprehensive business processing system" virtual project organizational chart.

Table 1. "New generation comprehensive business processing system" project members

	General design	*General accounting*	*Financial accounting*	*Savings loan*	*Public data*	*Front exchange*	*Supply*
CGCTS	1	1	2	2	2	3	—
BADST	1	3	2	2	1	—	—
PCBST	2	3	4	4	3	3	3
PCBBU	—	—	4	4	3	—	—
Total	4	7	12	12	9	6	3

In the daily operations, members of the NGCBS virtual project organization on one hand belonged to the functional departments in their own companies, and on the other hand had to follow the task group leadership and its coordination. In each of the task groups, supervisors set up group goals and task plans for each member of the group according to the general project plan. The performance of those tasks was evaluated on the basis of achievements from team members' goals. Since this project consisted of a series of unstructured tasks, multi-stage task analysis and problem solving were conducted among team members in the process of project design and development. Alternative plans of solutions were often formulated and presented by the task groups to the general design group or the project management team for decision making. The members of six task groups participated in the problem solving and decision making on task issues across groups.

Key Issues in the Virtual Project Organization

With the development of the NGCBS systems designing, the virtual project organizations encountered a number of key issues and problems in conducting the tasks:

1. *Poor decision-making process.* Since the virtual project members came from four different companies with a temporary grouping and the task groups were working in different locations with in-regular communication, the discussions and decision making in the virtual team meetings were often in a hurry and ended up with disagreement, superficial argument, and slow decision process (time-consuming).
2. *Inflexible task goal adjustment.* As the project developed, the task goals of each group needed to be adjusted for the changes in the project work. Often there were areas of tasks neglected by either task groups. It was evident that some of task goals and particularly the overlapping part of the tasks caused significant waste of resources.
3. *Delay in task schedule.* Under the virtual project organization, task groups affected each other in the way that each had its own task problems for the general design group to coordinate. As a result, the general design group had little time to focus on the general planning and key technical issues. This led to a significant delay in task schedule.

Solutions to the Key Issues in Managing Virtual Project Organizations

To solve these problems, several measures were taken:

1. *Virtual project management Website (VPMW).* The virtual project organization first established a virtual project HR management Website under the daily network environment. In this way, through a new server and a client terminal, additional functions such as news announcement, BBS technical discussions, task assignments, file management and search were realized. Also, important document communication was ensured through a Notes e-mailing system. The VPMW indeed enhanced the virtual team networking management in the whole project of the four organizations.
2. *Interactive team feedback analysis (ITFA).* The virtual project organization adopted an interactive team feedback analysis practice to achieve common view of team task planning. The ITFA was conducted in a regular team communication meeting. The project managers gave feedback about the work progresses and delays for both individual members and the whole team to each of the five task groups while each task group organized a group discussion session and prepared the group action report. The group reports were then circulated at the VPMA and presented to the general design group. After some network communications, the group reports were presented at the face-to-face in-depth ITFA sessions for decision making and "coordination by objectives" (CBO) when all the task groups participated in those sessions. Finally the group action plans were finalized for the whole project team. In fact the ITFA functioned as a task-focused participative experience for all team members.
3. *Process goal setting and on-line control.* An important solution for problems in the virtual project organization was to organize team goal-setting sessions periodically and enhance on-line monitor and control of the progress in the project work. The task objectives of each group were publicized with detailed periodic sub-goals. It also focused upon cross-areas of tasks among the five groups and particularly the task areas that seemed not to belong to any group. All the task groups presented their phase-reports and group discussion abstracts to the general design group through the VPMW, so that the process and progresses of the task group work was closely monitored.
4. *Active coordination through networking.* The virtual project organization utilized the networking process to enhance active coordination and built up a parallel communication model across various task groups. Most problems and issues that could not be solved through

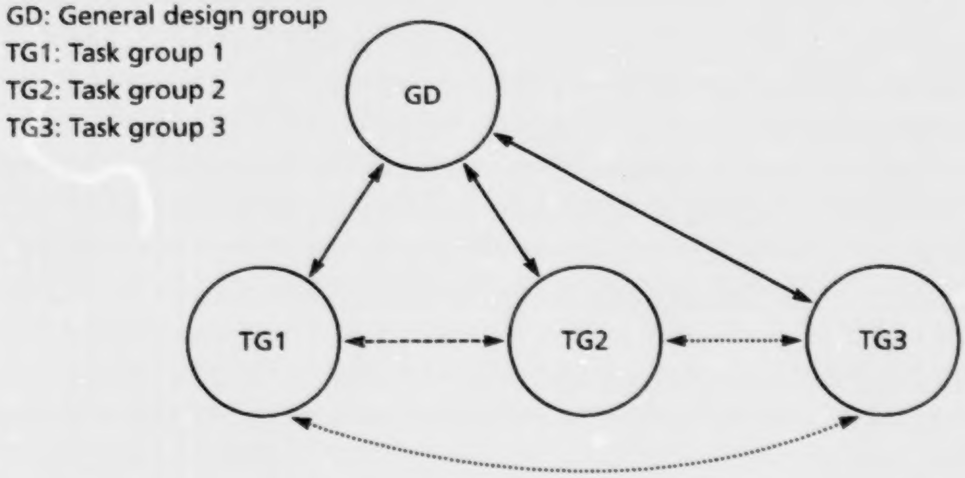

Figure 2. Active networking coordination chart.

> active network coordination would be presented to the project management group for further discussion and supervision. Figure 2 illustrates the active networking coordination chart. The dash line presents the networking channels across task groups.

The above-mentioned solutions have effectively solved the problems along with the project development process. As a result, complains and inconsistencies were largely reduced and the decision efficiency increased. Especially, there were significantly less cross-group "blank" task areas. Managers often reported a great increase of control in project progress and task mastery. The parallel communication model reduced the management workload so that the project leaders had more time to focus on general planning and technical monitoring while the six task groups under the project management team were largely motivated. The whole virtual project organization became a productive unit and successfully accomplished the NGCBS project.

HRM Implications for Virtual Organizations

Several implications from the case analysis are worth mentioning for the effective virtual team management:

1. *Enhancing structural features of networks as a technical subsystem.* From this case, it was evident that information exchange and communication played a crucial role in the virtual organizations. The coordination across task groups was an important issue faced by the virtual

> team managers and supervisors. In the organizational transformation from the line-functional management into the networking organizational HR management, functional departments often became the "bottleneck" for the project. In order to solve this "bottleneck," several actions need to be taken.

Figure 3 presents the four main types of the computer network structure: star model, circle model, all-channel model, and total-line model. From the development of virtual project organizations, the structure of PB's virtual project organization in the early stage of the project was partly based upon the star model with the general design group at the center of the structure. However, the poor coordination function of the general design group might totally jeopardize the virtual organizational system. With the circle model, if any node of the cycle model went wrong, the system could still keep the information running through other path while the all-channel model apparently would reduce the efficiency of the information processing due to a large amount of paths. Therefore, these models were seldom adopted in the team network systems. The total line model proved to be most effective when any problem at one node won't affect the whole system's function. This model has been widely recommended for the local network and virtual project organization building. Often people used a mixed model of network structure or an irregular structure. From the

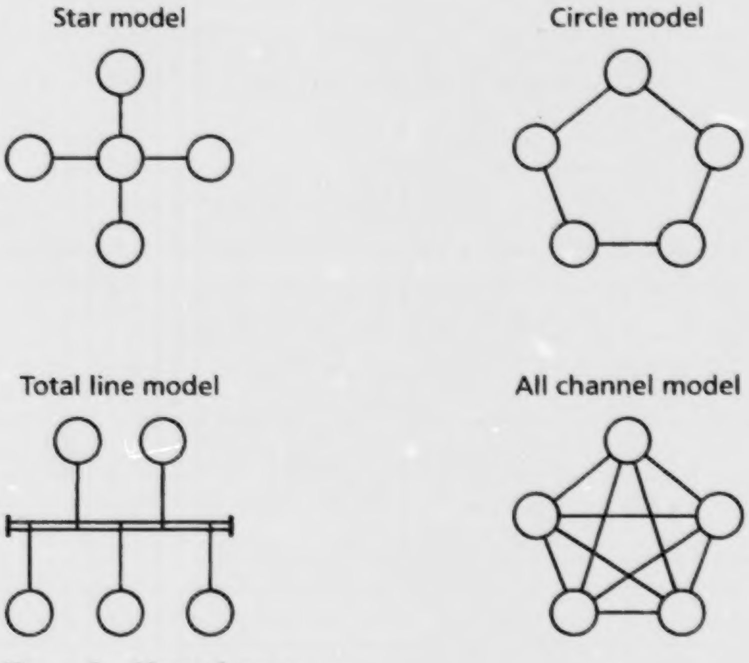

Figure 3. Network types.

present case, it was found that adding cross-group communication channels to the start model did greatly increase the efficiency of internal information transfer and reduce the workload of the central node so that the total effectiveness of the virtual project organization was significantly enhanced. An important implication is that a proper structure of a virtual team in combination with active team activities would have positive impact upon the virtual organizational effectiveness.

2. *Achieving interactive feedback and communication model as a social subsystem.* Under the network team working, the communication model is crucial to organizational performance. In this case, an interactive team feedback analysis model was built up as an approach to enhance team climate and HR development for the virtual project organizations. On the one hand, it is to improve virtual team members' participation in decision making. On the other hand, it is to add on an interactive communication and feedback mechanism and promote inter-unit communication, so as to increase total work efficiency.

As a HR strategy for high performance of the virtual organizations, it was effective to achieve sociotechnical systems fit through both the computer network channels and the interactive team feedback analysis so that various task groups could be integrated into a real team network system.

CASE 2: CROSS-FUNCTIONAL MBO IN VIRTUAL ORGANIZATIONS

Case Background

In order to adapt to the great needs of information economy and E-commerce, with an in-depth analysis of banking market in China, the Provincial Bank (PB), the provincial on-line E-commerce corporation (POL), the city telecommunication bureau (CTB) and the City Business School (CBS) decided to collaborate with each other and organize a virtual project organization in March 2000, in developing an "E-commerce Comprehensive Application System' (ECAS). This system adopted largely the Web-based EDI technique in combination with CA certification as a total solution. The idea behind this project was to use the internal funds networking to help enterprise clients to conduct on-line transactions, and to assist large industrial group customers to implement an E-commerce transaction and improve internal financial management.

This system adopted the electronic data exchange service by telecommunication and a special server with security measures to prevent any financial risk. It was also considered as technically simpler and more convenient, more fully utilizing the internal funds and one comprehensive transaction system to complete multiple payment and accounting functions.

This ECAS project team was organized by four organizations: PB, POL, CTB, and CBS with personnel, facilities and funds. Among them, the PB was responsible for bank internal accounting subsystem; the POL was mainly in charge of Web-net development, EDI interface technique, software development and CA certification; the CTB responsible for EDI facility and technique, while the CBS responsible for front EDI interface design and development. A virtual project organization consisted of 13 members from those four organizations. Since the CTB was mainly responsible for facilities, they didn't send members to directly participate in the project teamwork. Under the project management group, there were three task groups: a needs analysis group for project needs planning, a software development group for project software designing, and a total system group for pilot testing and implementation. The three task groups formed a cross-functional team. Each of them had members from the three different organizations. Figure 5 presents the organization chart of this virtual project organization and the three task groups.

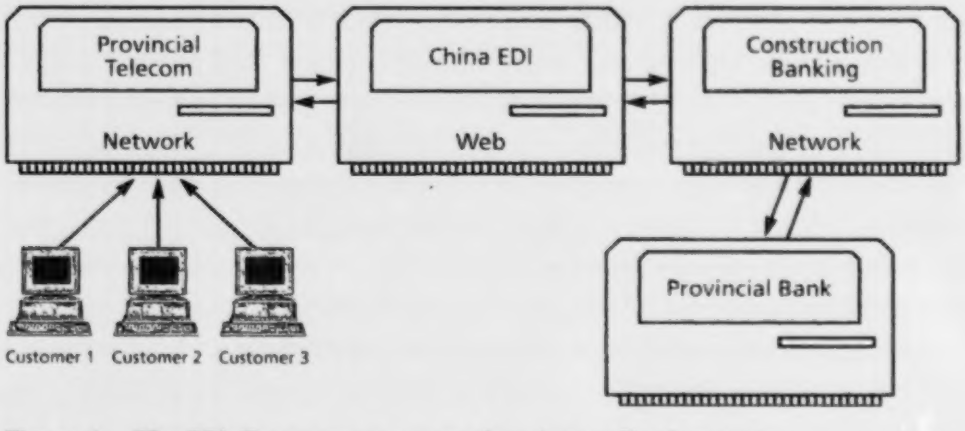

Figure 4. The PB's E-commerce comprehensive application system.

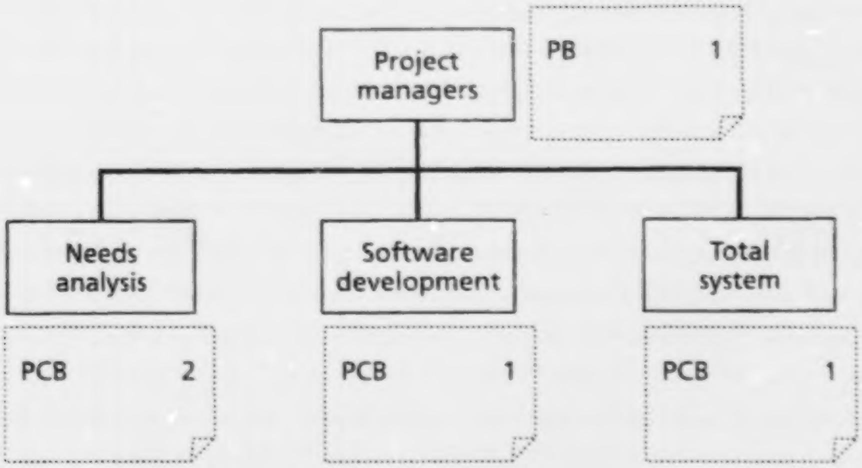

Figure 5. An organization chart of the ECAS virtual project organization.

Key Issues in the Virtual Project Organization

With the progress of this project, there were problems in the virtual project organizations. The main problem was that members of the software development task group could not keep the same progress as the other task groups did. While the main objective of the POL was to use the provincial POL Website, the main objective of the PB was instead to utilize its own internal accounting network. The two kinds of objectives were somewhat in conflict. At the same time, technicians from the two organizations could not agree upon the focus of project procedure and they adopted very different approaches in the project implementation. Besides, participants from the CBS had a lower-level of expertise in systems development and teamwork in the virtual setting. They could not complete the task of bank front EDI interface technique development. Since the EDI interface was the "bridge" of the whole system, this led to a general delay of the project. Apparently, the virtual project organization had serious problems in selection, coordination, and teamwork.

Solutions to the Key Issues in Managing Virtual Project Organizations

The management team noticed the teamwork problem at the early stage of the E-commerce project. Several measures were taken to improve the situation:

1. *Redefine the organizational strategic objectives.* A project team discussion session was organized to redefine their strategic objectives in order to adjust the working pattern of the software development task groups. Both PB and CTB realized that although both sides had their own markets, customers and strategic objectives, the cooperation between two organizations in this virtual project organization would have a great prospectus and high potential with unestimated social and economic benefits. After the ECAS was developed and implemented, the bank could provide more advanced services to attract more customers and funds return, while the provincial telecom could attract more EDI clients and on-line customers with a great increase in use of various telecom lines. As a result, the POL would largely enhance its reputation and increase the service income so as to build up an effective "bridge" for helping various organizations to start their E-business. Therefore, the strategic objectives of both organizations were compatible, i.e., to build up a highly efficient and practical E-commerce system platform.
2. *Adopt a team-regrouping for process person-team fit scheme.* Since there was an apparent unfit between team members and team tasks, the EDI design and development group was found to be the weakest point of the person-organization fit model. In the virtual cross-functional teams, due to the lack of acquaintance among the team members, it was difficult to examine the characteristics and expertise of the members. Therefore, the CBS was asked to carry out a team regrouping process by conducting diagnostic assessment of the teamwork skills and assigning members with better experience and high expertise of teamwork for the EDI design and development in order to ensure a better person-task-team fit. In this case study, a feedback-adjustment process was also used in the team regrouping and expertise building.
3. *Strengthen the virtual organizational MBO approach.* In the virtual project organization, it was crucial to divide the general project objective into task goals so that practical performance indicators could be developed for each member of the virtual organizations as well as the organization as a whole. The virtual organizational MBO approach is characterized as cross-functional objective specification, cross-task-group objective definition, cross-hierarchy performance indicator monitoring and participative MBO procedure. In this way, the cross-functional task groups would have a common objective with motivations from different parties of the project.

With the above-mentioned measures, the virtual project team working entered into a new stage of development and the ECAS system was put into function for trial in September 2000. Since then, several cross-regional enterprise groups have successfully adopted this E-commerce system as a comprehensive application platform. Companies such as the Chinese Pharmaceutical Group, the Provincial Broadcasting Group and the Provincial Bank used the ECAS system and achieved rapid funds gathering and timely financial expense coordination. The task force teams organized from different enterprise groups have been working interactively and virtually, helping the headquarters of those enterprise groups to monitor on-line financial information from their subsidiaries and enhanced relevant accounting systems.

HRM Implications for Virtual Organizations

Some HR implications for the effective virtual team management are the following:

1. *The importance of strategic objectives management.* From this case, it is evident that in the virtual project organization operations, team members need to not only follow the objectives and interests of their own organizations but also the goals set for the virtual project organization. The incompatibility between those objectives and interests may cause contractions in project planning and virtual teamwork. An effective approach to this problem is to develop, share and reinforce common strategic objectives and interests of the project with high organizational identity. This requires that organizations select managers and technicians with better strategic thinking ability, vision and goal setting skills to participate in the virtual organizations and that a goal setting session be organized at the early stage of the project planning. Only when the HR management model matches with organizational objectives, can team working serve the general project target effectively.
2. *The importance of the team regrouping process.* The second implication of this case is that the misplacement of members in the virtual project organization s may cause a poor cooperation of key task groups of the project and lead to the failure of the whole project. Therefore, an effective selection and pre-placement with person-job-organization fit is a prerequisite for the E-commerce project. In the E-commerce project, the virtual organizational members had various skills and expertise and they became the knowledge teams. However, with different background and expertise, the key to success is to achieve a multi-facet person-job-organization fit through regrouping.

3. *The importance of team performance indicators.* Under the networking virtual organizations, the process control is largely weakened and therefore performance appraisal becomes an important method of monitoring and facilitating the teamwork. In addition to the conventional indicators of quality and quantity as performance measures, team coordination and general team effectiveness are crucial performance indicators of team effectiveness. To the research and development task group, different principles and procedures of performance evaluation need to be formulated. In this case analysis, some key indicators include competence requirements (technical and team skills), module-specific goal-setting and coordination and feedback frequencies. This could be achieved through adopting a periodic team MBO approach.

CASE 3: LEADERSHIP KNOWLEDGE SHARING MECHANISM IN THE VIRTUAL ORGANIZATION

Case Background

In the recent years, the saving accounts have been increased greatly in China. Investment as a new concept has become more popular and the stock markets more active. Many people hope that the bank and the stock company could establish a collaborative "fast lane" to facilitate the transaction and utilization of various funds. In July 2000, the Provincial Bank (PB), the New-Interest Software corporation (NIS), the Ever-Grow Software Corporation (EGS) and several Stock Exchange Corporations (SECs) decided to cooperate in jointly developing a "Stock Client Transaction System" (SCTS) on the basis of the "Bank Certificate Transfer and Exchange System" (BCTES).

The whole SCTS system connected with two computer business systems: the PB system and the Stock Exchange Systems (SES). Figure 6 presents the flow chart of SCES operation.

Through the SCTS, clients could directly transfer funds from their bank accounts to conduct buy-and-sell transactions at the Stock Exchanges in cities like Shanghai and Shenzhen. The SCES implements such functions as purchasing and withdrawing shares and bonds, searching stock information, registering, consulting, modifying and canceling the accounts. Although this project deals with one bank, two software firms and several stock exchange companies, each stock exchange company only used one "system product." The PB system as a core system of the project needs to connect itself with systems of each stock exchange company one by one. Therefore, the project virtual team has members from the bank, the stock

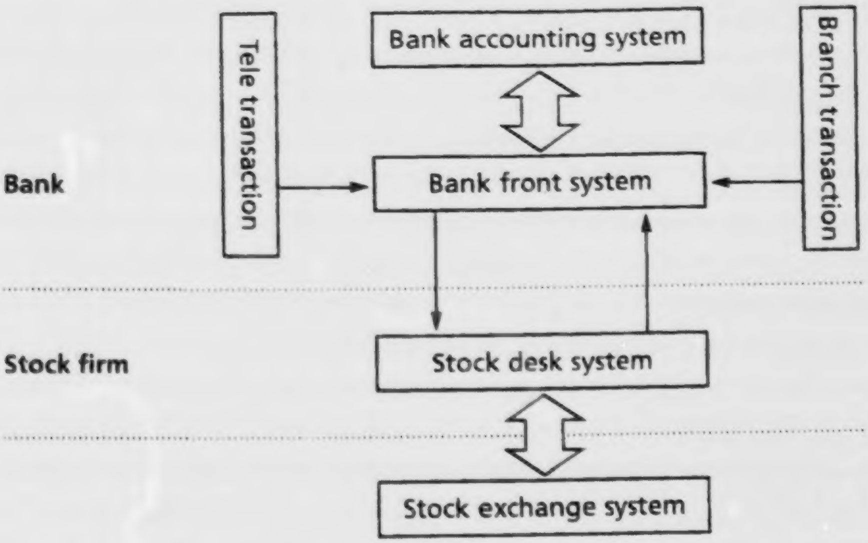
Bank
Stock firm
Tele transaction
Bank accounting system
Bank front system
Branch transaction
Stock desk system
Stock exchange system

Figure 6. The flow chart of SCES operation.

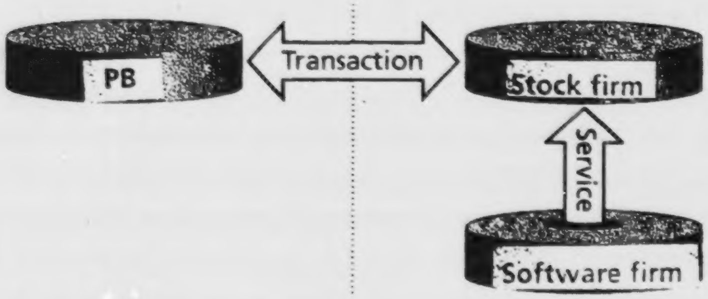
PB
Transaction
Stock firm
Service
Software firm

Figure 7. Stock client transaction system development chart.

exchanges and the software companies, which is responsible for the interface design and development. Figure 7 illustrates a simplified chart of SCTS project development.

Key Issues in the Virtual Project Organization

In the virtual project organization, the back group, the stock exchange group and the software group conduct their module tasks within their systems environment while the systems connections are developed jointly by technicians from the PB and the software companies. However, there were mainly two problems in this virtual organizational systems development process.

1. *Lack of parallel information processing and control.* While the collaborative parties of this project adopted a parallel working model, i.e., each party conducts its own task under a self-determined pace by its supervisors, the whole project was lack of information exchange at the leadership level, so the coordination and control were weakened.
2. *Lack of vertical interactive supervision.* Although telephones and e-mails were frequently used for communication, team members still needed the CSE to give formal supervision across partners as well as training on interaction skills at eh task group level. This was because the PB and the two software companies had no direct relationship and because team members were used to individual single task work situation. The project virtual teamwork was poor and ineffective.

Solutions to the Key Issues in Managing Virtual Project Organizations

To this solve these problems, the following two solutions were adopted:

1. *Develop the leader-level knowledge sharing mechanism (LKSM).* The project mangers developed and adopted the Leadership-level Knowledge Sharing Mechanism (LKSM) for weekly knowledge sharing of process and results in project implementation. The LKSM is presented in Figure 8.

As we can see, the horizontal leadership-level knowledge sharing channel enhanced the parallel information processing links across three task groups, but due to the time-consuming vertical communication for coordi-

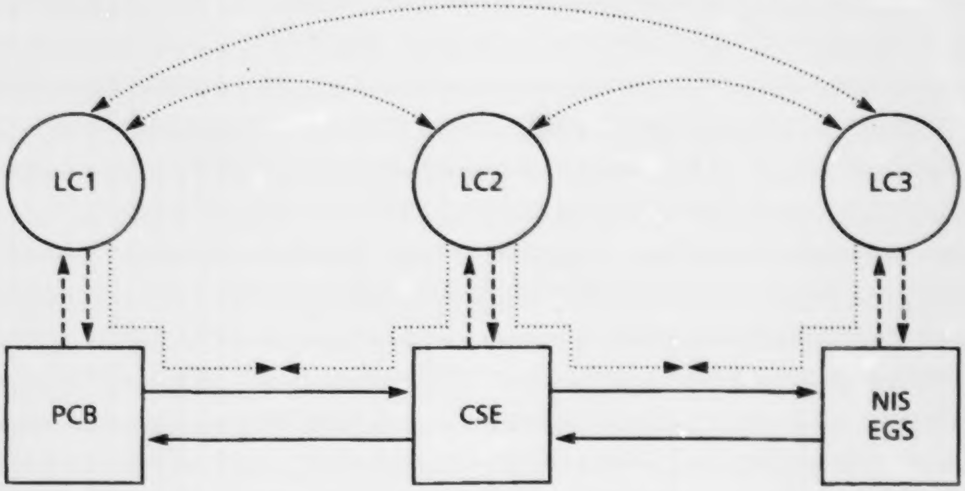

Figure 8. LIKM parallel information processing chart.

nation actions, the LKSM could not often function on-line and therefore a reduced work pace by the virtual task groups. The actual operations of this project were largely connected with the CSEs and the incompatibility between the PB and both NIS and EGS did not affect the operations of the project progress. The LKSM proved to be relatively effective in the Chinese context of virtual team working.

2. *Encourage mentoring for process-control and result-orientation competence.* In this case analysis, however, the increase of leadership-level knowledge sharing mechanism did not totally solve the virtual team coordination problem. A special mentoring program was formulated to enhance members' competence in cross-task-group technical- and process-control for result-orientation. Therefore, a "mentoring relationship contract" was developed among pairs of leader-member to form the supervision relationship and competence building. In less than one month, an effective dynamic process control and result-oriented team climate across various task groups were achieved.

HRM Implications for Virtual Organizations

What do we learn from this case in terms of HR? Three implications are important:

1. *Establish new information processing mechanism.* In developing the E-commerce systems, it would be important to provide or formulate a new communication and information processing mechanism such as the leadership knowledge sharing mechanism in order to achieve better resources-sharing, reliable coordination and low-cost team working.
2. *Facilitate process control and result-orientation organizational climate.* Managers in the cross-organization leadership should be prepared to work in parallel and communicate across organizational levels. This multi-level communication competence needs to be enhanced with the development of a result-orientation organizational climate.
3. *Develop teamwork competence-mentoring program.* As in either local area network (LAN), wide area network (WAN) systems or Arpanet (package information exchange) which are functioning through the TCP/IP agreement type of rules and agreement, partners in the E-commerce project would develop and establish a mentoring relationship with formal paths and project-defined rules in order to ensure effective project virtual team working. This could be done through a teamwork competence-mentoring program.

CONCLUSIONS

From the present three cases, four features of virtual organizations are significant: Team objectives, team coordination, team responsibility and team expertise. Table 2 presents the comparisons between virtual organizations and ordinary teams in terms of those four features.

Table 2. Four Features of Virtual Organizations in Comparison with Ordinary Teams

	Virtual Organization	*Conventional Team*
Objectives	Long-term and strategic	Short-term and tactic
Coordination	Multi-phase and interactive	Direct and top-down
Responsibility	Trust, knowledge sharing, and horizontally distributed	Identity, information exchange, and vertically ordered
Expertise	Communication, coordination, strategic thinking, goal-setting, independence	Support, cooperation, team development, goal-setting, norm-dependent

In general, the main features of virtual organizations are: (1) the team objectives are more long-term oriented and strategic; (2) team coordination is in multi-phases and more interactive; (3) team responsibility is more based upon trust, knowledge sharing and horizontally-distributed; and (4) team expertise include skills of communication, coordination, strategic thinking, goal-setting and independent working. However, the main features of conventional teams are: (1) the team objectives are shorter-term oriented and tactic; (2) team coordination is direct and top-down; (3) team responsibility is more based upon identity, information exchange, and vertically ordered; and (4) team expertise include skills of support, cooperation, team development, goal-setting and dependent upon teamwork norms. The main features of teams create and promote the organizational climate and are crucial to virtual organizational performance.

As the organizational environment is becoming increasingly complex, the value of virtual team has been more and more recognized among managers and employees with multiple skills, experience and knowledge. In the virtual organizations, performance relies more upon the teamwork strategies among the team members. Kimball and Eunice (1999) presented five strategies to optimize the performance of virtual teams and organizations: (1) make the whole visible to everyone; (2) provide a "line of sight"; (3) catalyze rich conservations; (4) amplify energy; (5) create tracks and footprints in physical space. The present case analysis provides evidence for more management level strategies in terms of network strategic plan-

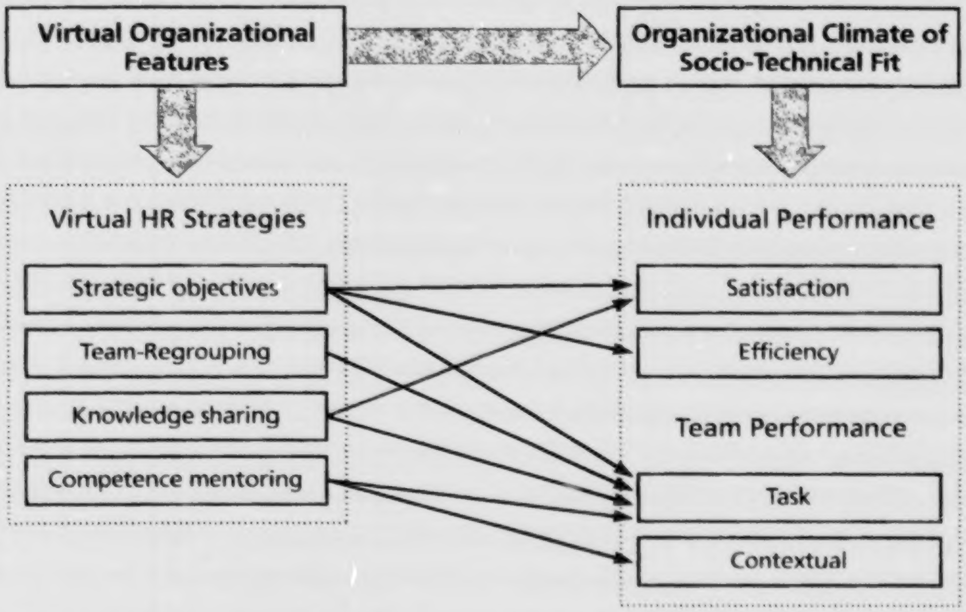
Virtual Organizational Features
Organizational Climate of Socio-Technical Fit
Virtual HR Strategies
Strategic objectives
Team-Regrouping
Knowledge sharing
Competence mentoring
Individual Performance
Satisfaction
Efficiency
Team Performance
Task
Contextual

Figure 9. HR strategy and virtual organizational performance model.

ning, organizational performance, interactive information processing and competence mentoring.

On the basis of the case analysis, several key characteristics and principles of virtual teamwork and their relationship with organizational performance could be are summarized. Figure 9 present a general model of virtual organizational HRM strategy model. As it is shown in Figure 9, virtual organizational features have significant impact on HRM strategies and organizational climate of sociotechnical fit. Four leadership strategies are proved to be crucial: strategic objectives, team regrouping, knowledge sharing and competence mentoring. These strategies will affect both individual performance (satisfaction and efficiency) and team performance (task and contextual performance) whereas organizational climate will also influence virtual organizational performance.

The main HRM implications of the present case analysis are as the following:

1. *Virtual organizations need strategic objectives-setting for long-term benefits.* Often in E-commerce, there was a tendency to seek for short-term interests, a short-term profit orientation among parties of virtual organizations and neglected actions for the long-term benefits. The present case showed that the virtual organizational goal-setting for effective management by strategic objectives is crucial at the early stage of project development. It will be beneficial for virtual organi-

zational management and business development. In elaborating the implications of E-commerce for the Chinese corporate development, Yang (2000), president of the largest Chinese computer company, pointed out that E-commerce is not just an electronic-based business, but it involves the informationization and procedure reorganization and optimization of the whole company and that E-commerce will not only increase the company efficiency and reduce the cost, but also enhance customer satisfaction through more individualized customer service. A typical E-commerce development model should include four incremental phases: phases of corporate network building, office automation, core business management systems, and value-added e-business. He defined IT service as a strategic objective for virtual organizations in terms of pre-sale consulting-easy module solution, program implementation, post-sale operational maintenance, systems design and customer service.

2. *Virtual organizations need active task group regrouping to achieve high-level of member-team fit and team compatibility.* Given the decentralized pattern of task group structure, a flexible leadership approach proved to be useful for ensuring on-site regrouping for member-team fit in virtual team HR development. The team regrouping process should be participative. Virtual team members actively interact with each other in the task group participation to enhance their team role awareness and identity. In this way, a voluntary team regrouping procedure could be implemented and a kind of team compatibility would be achieved. In discussing the cross-cultural leadership teams in China, Wang (1998) identified three components of team compatibility: active cooperation, communicative coordination and information sharing. Through active regrouping, three levels of team compatibility will be ensured across virtual organizations: strategy compatibility (the managerial compatibility of the strategies adopted by various parties), group compatibility (the psychological compatibility among team members from different organizations), and performance compatibility (the operational compatibility among performance criteria and systems.
3. *Virtual organizations need more competence mentoring from the managers, particularly for skills of networking, goal-setting and result-orientation.* Although the IT development is changing the process of organizational behavior, the hierarchical structure and bureaucratic system still affect and restrict the way of managing teams. Even in the virtual organizations, there is a hierarchical leadership coordinating the activities. The present cases demonstrate that in the virtual setting, relevant groups are connected by the tasks of cross-organizational projects and therefore skills for networking, goal-setting and goal

implementation, and result-orientation are important, especially when face-to-face communication is limited and reduced. A trustful relationship between virtual leader-member dyads could be developed through a competence-based mentoring leadership style (Wang, 2001) and a result-oriented performance approach (Kimball & Eunice, 1999). Further studies could be carried out to gain a comprehensive understanding of the dynamic mentoring relationship in terms of face, favor, and Guanxi (connection and relationship) and the process of Chinese social interaction and networking in the virtual teamwork (Gabrenya & Hwang, 1996).

4. *Virtual organizations emphasize interactive communication and knowledge sharing both at leader and member levels.* From the case analysis, it is evident that effective communication is a prerequisite for high virtual-team effectiveness. This was also noted in the previous work (Townsend et al., 1998). Although the computer network provides the teams with more communication channels and opportunities, the way of utilizing those channels and communicating information is the key. Traditionally, Chinese communication was largely characterized by implicit communication, listening-centeredness, politeness, focus on insiders, and face-directed communication strategies (Gao, Ting-Toomey, & Gudykunst, 1996). Specifically, implicit communication refers to a mode of communication which is contained, reserved, implicit, indirect and emphasizes nonverbal communication while a focus on insiders creates a closed system of communication in Chinese culture. In addition, face management is essential to maintaining the existing role relationships and preserving interpersonal harmony. It is particularly ture in the cross-organizational context emphasizing the instrumentality of face-concerns as a method of achieving business goals (Smith & Wang, 1996). These cultural characteristics would certainly affect the teamwork behavior under the virtual organizational setting. Using leadership knowledge sharing mechanism and "on-line" group feedback, the present cases show that an interactive communication and knowledge-sharing model will to a large extent compensate the limitation of implicit and face-directed communication mode among the Chinese virtual organizations.

In general, the virtual team structure is largely based upon the types of computer networks in the organization. The virtual organizations produce new features of team management and bring more flexibility and looseness to conventional organizational structure. There is an issue of person-task-team-organization-network fit among project task structure, computer network, organizational structure and virtual team composition. More strategies, tools and techniques are needed for actions in developing more flexible network structure for effective virtual organizations (Duarte & Tennant-Snyder, 2000). Through the four HRM strategies demonstrated from the present study, a high level of organizational effectiveness will be achieved.

ACKNOWLEDGMENT

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CHAPTER 13

ORGANIZATION, WORK, AND HUMAN RESOURCES PROCESS REDESIGN AT SMITH & NEPHEW ORTHOPAEDIC DIVISION

A Case Study

N. Fredric Crandall, and Marc J. Wallace, Jr.

ABSTRACT

A review of Smith & Nephew Orthopaedic Division's organization, work and rewards intervention offers and opportunity to observe how and organization can totally restructure its work process and overhaul human resource system components in a relatively short period of time in order to achieve a significant impact on operational performance.[1] This intervention was a centerpiece of the "Workforce 2000" initiative at Smith & Nephew, which was designed to transform how the company developed and delivered its products.

A Workforce 2000 Design Team was responsible for the transformation, which resulted in:

- The overall redesign of the organization into a team-based structure;
- The design of individual work roles and responsibilities to support the new organization;
- Career paths for individuals/work roles;
- Staffing requirements for the new organization;
- Skill-based pay to support the work roles on teams;
- Performance criteria for skill-based pay;
- A performance management program; and,
- Variable pay (Goalsharing).

The Smith & Nephew Orthopaedics case study is an example of the implementation of a "Cyberlink" Virtual Workplace. The cyberlink model is the most advanced virtual workplace model, utilizing cross-functional teams that traverse an organization and its external partners.

This article provides a virtual workplace context for the case study, outlines a brief history of Smith & Nephew's Orthopaedic Division, an overview of how the Design Team performed its work, details on the program components, and lessons learned from the experience.

A CASE STUDY OF THE CYBERLINK VIRTUAL WORKPLACE MODEL

The Smith & Nephew Orthopaedics case study is an example of the implementation of a "Cyberlink" Virtual Workplace. The cyberlink model is the most advanced virtual workplace model, utilizing cross-functional teams that traverse an organization and its external partners. Crandall and Wallace[1] developed three models representing successive combinations of more sophisticated technology and more complex organizational support to move into the virtual workplace (see Chapter 2).

The *telecommuting workplace* is the first rung or entry level virtual workplace. Telecommuting involves individual employees working remotely and linked electronically back to the physical organization. The *Front Line* is the second level, and involves individual employees of one company working on the site of the customer or partner and, in addition, electronically linked back to the home base of the employee. The *Cyberlink* workplace is the most sophisticated model and, at the present time, is the ultimate combination of technology and organization. In the Cyberlink model people from numerous companies work together in teams such as Supply chains and Customer Relations Management chains.

This case study involves complex organizational and technology relationships regarding Smith & Nephew Orthopaedics, its customers and vendors. As we shall see, while the case study focuses on one site, the organization structure spans far out from the one site to numerous entities.

SMITH AND NEPHEW'S ORTHOPAEDIC DIVISION IN MEMPHIS, TENNESSEE

Smith & Nephew's Orthopaedic Division (SNO), which was established in 1934 as the Richards Manufacturing Company, was acquired by Smith & Nephew in 1986. Based in Memphis, Tenn., the Division produces orthopaedic implants for knees and hips, orthopaedic trauma products, and spinal fixation devices.

This division is a part of Smith & Nephew, a worldwide producer of healthcare products, including bone, joints, skin, and other soft tissue repair products. Headquartered in London, England, the company employs more than 12,000 people in 33 countries.

Issues Facing the Orthopaedic Division

Rapidly changing market conditions, including soaring healthcare costs, changing cost structures, and new buyer behavior, had turned product price into a serious issue as the 1990s approached. At the same time, changing technology was transforming a craft like industry with a great deal of specialized, skilled work into a high-tech manufacturing business, with sophisticated modeling and milling techniques.

To remain competitive, management realized that the division would have to find a way to develop price-competitive, high technology products, (without compromising quality), and focus on customers' changing requirements.

In the early 1990s, SNO introduced high technology methods into some manufacturing groups, while others continued using traditional techniques. Employees began to complain that pay was no longer fair among these groups. SNO decided to address these pay grade equity issues between machinists in the high tech and traditional groups. It was this initial concern about paygrade equity that unraveled SNO's manufacturing community. Investigations by an outside consultant confirmed that "fixing" the pay problem would only patch over a much larger issue of organization and work design issues. A subsequent study resulted in an intervention to completely overhaul the manufacturing work organization. Thus, SNO began to reexamine its work processes and organizational structures with the result that it eventually undertook a transformation that involved an integrated approach to process redesign, work redesign, rewards, staffing, and performance management redesign.

SNO began the organization and work transformation with a pilot project in its Hips Manufacturing Group (HIPS) and went on to reassess and redesign its processes, work, and compensation functions throughout the manufacturing organization. The HIPS project, which is the focus of this chapter, provides significant insights into an integrated approach for a full-scale redesign.

History of the Redesign Process

SNO first addressed machinists' pay issues by initiating "Machinist 2000" in 1991, a program to ensure equity in pay grades between manual and computer-aided processes. But, with growing awareness that pay equity problems would necessarily spread as SNO embraced more high technology work processes, management pursued "Employee 2000" in 1992, a companywide effort to align compensation with technology changes.

As it examined the changes occurring, management decided to extend the focus of "Employee 2000" to examining the way people behaved at work, seeking the methods for making optimal use of these behaviors. Nevertheless, Machinist 2000 and Employee 2000 were not successful. Management simply did not embrace the change process or the recommended solutions because management was not convinced that the recommendations were broad-based enough to resolve the root causes of the problems.

The problems continued, and management recognized that they needed to be addressed on a broad scale. In 1994, under the sponsorship of a broad-based task force from manufacturing and human resources, "Employee 2000" was transformed into "Workforce 2000", a far more extensive effort, whose goal was to move from traditional functional jobs to a team-based workforce with customized staffing requirements, skill-based pay, variable pay and career-based performance management.

The Worforce 2000 initiative began with an internal design team working with a consultant to recommend methods for improving work and pay systems for the whole Orthopaedic Division. The design team, chosen by senior management, represented a diagonal slice of the manufacturing organization. The design team's work resulted in a set of recommendations that led to the HIPS project.

The design team began its efforts in 1994 and spent close to a year developing a detailed gap analysis that evaluated current systems and identified where they fell short in relation to SNO's desired strategic direction. It also put together an action plan to restructure the systems.

The design team's work resulted in a proposal for wholly redefining the workforce. That meant job classifications, staffing requirements, base pay structures, pay bands, variable pay systems, transition plans, etc., would be redesigned to support SNO's clearly articulated business strategies. The proposal also recommended that the organization start by launching three pilot projects to begin the transformation to a high-performance workplace. One of these pilot projects was carried out by the Hips manufacturing group. The group was called the "HIPS" team.

As the HIPS team approached its assignment, it soon realized that transforming the workforce was not going to be enough. The project required transforming the entire physical production process as well. In order to meet its objective of producing low-cost, high-quality, customer-specific hip replacements, the division needed new physical capital intensive processes run by a renewed workforce.

Thus, what began in 1990 as an initiative to ensure equity in pay grades grew into a full-scale integrated process redesign aimed at radically transforming the way the HIPS team would work.

Setting Goals for the Intervention

To manage the redesign process, the HIPS unit first organized a design team of 15 members, representing all hourly and salaried departments in the unit, chosen by the HIPS group senior management. The design team established principles to guide its work (Figure1) and established boundaries so that it could go about its work with minimal disruption. The principles were very radical and led to specific goals for cutting manufacturing costs, improving quality and productivity, drastically reducing inventory levels, processing/order time, paperwork, and hand-offs during processing (see Figure 2).

Design Principles of HIPS Team

1. We will create a team driven, multi-skilled, educated, and informed work force.
2. We will adopt a management style that emphasizes coaching, facilitating, and enabling.
3. We will use speed, throughout, and efficient operations to create a competitive advantage.
4. We will ensure quality is an inherent part of all our processes.
5. We will become a total low cost solutions provider.
6. We will become a flexible, customer-focused organization.
7. We will be seen as a leader in the industry by our customers and peers.

Figure 1. Design principles of HIPS team.

Performance Indicator	% Expected Improvement
Inventory	55% Reduction
Process Time/Order	55% Reduction
Number of Documents in the Process	85% Fewer Documents
Number of hand-Offs in the Process	59% Fewer Hand-Offs

Figure 2. Goals of the HIPS design project.

The design team drew on the varied experiences of its members to identify the key areas where changes could and should be made:

> *Larry Gustafson*, a machinist, believed that major goals of the design project should include developing a more intelligent manufacturing process (with faster lead time and less inventory), as well as a fair compensation system and an end to hierarchical inefficiencies that frustrated operations.
> *Rick Loyd*, a planning and procurement supervisor, emphasized faster time to market, holding less inventory, and creating a better IT system as initial goals. Stressing the importance of a new compensation system to make the new design work, he added that, without it, any attempted process changes would be perceived as "just another fluffy program."
> *Clay Clayton*, a Manufacturing manager, focused on improving the manufacturing process for the sake of lower product cost as well as a better reward system.

Despite their differing perspectives, team members generally agreed on the unifying concepts of improving how work was done, and the need to conduct a thorough process review.

Organization Redesign

The design team reengineered the work process to collapse 10 steps into just four steps. The objectives of the new organization design were to:

- streamline the work process;
- eliminate unneeded repetition and hand-offs;
- eliminate unneeded tasks;
- provide greater responsibility for existing workers;
- eliminate unneeded bureaucracy; and,
- eliminate unneeded departmental distinctions.

The HIPS group accomplished the radical redesign of its existing process without concern for traditional boundaries or distinctions. It started with a blank piece of paper to envision a totally new approach. The process involved extensive involvement and input from vendors and customers. In effect, the redesign facilitated a much more efficient supply chain and more effective customer relationship management. In doing so, the design team used a comprehensive, systematic process redesign approach and developed a detailed process plan.

Figure 3 compares the old and new process steps. Each step in the old process represented a departmental distinction and, thus, a hand-off. At each of these transfer points, material typically would sit on carts awaiting pick-up, or time was required for departmental managers to review work products.

The new organization design shortened the process. It eliminated some activities (such as final inspection) and broadened others. And, by eliminating departmental distinctions in favor of a few teams organized around critical activities, it also eliminated many of the old hand-offs. For example, Forecast/Planning/Procurement (FFP) was now one activity, combining tasks across three departments.

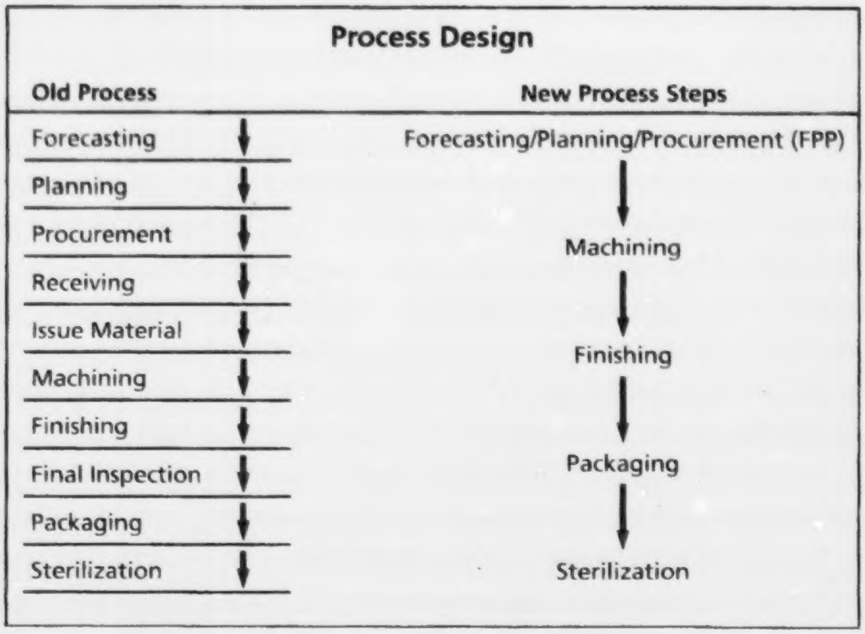
Process Design
Old Process
New Process Steps
Forecasting
Planning
Procurement
Receiving
Issue Material
Machining
Finishing
Final Inspection
Packaging
Sterilization
Forecasting/Planning/Procurement (FPP)
Machining
Finishing
Packaging
Sterilization

Figure 3. Process design.

Work Redesign

The HIPS group continued its work by using the same methodology which was used to design the organization supporting work structures. This involved defining the team structures to support the reconstructed organization, as well as the skills required by team members.

The design team pursued the work redesign phase as rigorously and comprehensively as it had the process design. The design team began by defining the individual skills and team structure the organization would need to maximize the potential of the new process. This led the team to develop a design for the workforce that would rely on self-managed work teams.

Figure 4 outlines the structure of multi-skilled work teams. As shown, every manufacturing associate was expected to possess seven core skills:

- Applied mathematics, including basic computational skills;
- Reading at a level required to understand and comprehend the work of teams;
- Applied technology, including basic computer skills;
- Listening skills;
- Teamwork social skills;
- Basic writing skills; and,
- Skills in locating information.

These core skills represented a significant departure from SNO practice. Each associate was tested prior to implementation to determine capability on these skills. For those lacking required test scores, remedial training was provided on company time. These core skills would later become baseline criteria for employment on a HIPS team.

Associates were also expected to possess entry-level proficiency in every one of the seven skill-block areas:

- Material deployment, the moving of materials throughout the production process;
- Machining, including a number of steps in the production process;
- Finishing the machining process by applying high-performance metal surfaces;
- Packaging to meet sanitary specifications;
- Maintenance of capital equipment and machinery;
- Quality management; and,
- Team and social skills (beyond core requirements).

Depending on the skill block, associates would have an opportunity to increase their skills to the “accomplished” or “advanced” level. For example, packaging and maintenance are only included at entry-level profi-

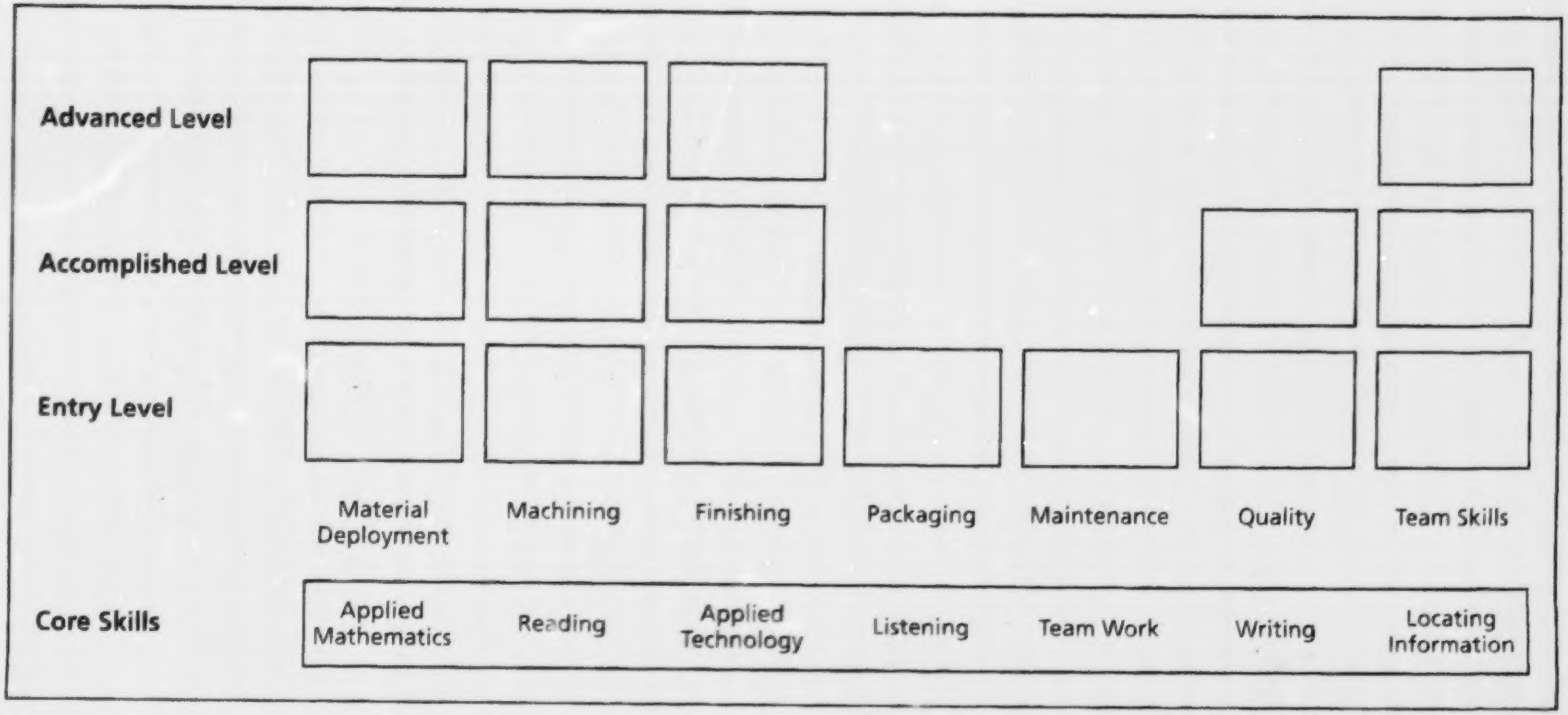
Advanced Level
Accomplished Level
Entry Level
Material Deployment
Machining
Finishing
Packaging
Maintenance
Quality
Team Skills
Core Skills
Applied Mathematics
Reading
Applied Technology
Listening
Team Work
Writing
Locating Information

Figure 4. Core skills ans skill development steps.

ciency; material deployment, machining, and finishing had a progression of proficiency levels through the advanced level.

Of special importance are team skills (the last column on Figure 4), which relate to the development of the team management system. These competencies include communication, team management, and supervision. (HIPS made acquisition of these skills a requirement for associates' career progression and skill-based compensation as a means to reinforce and promote team self management).

Since every manufacturing associate would be required to have the core skills and an entry level proficiency for each skill block, career paths became combinations of accomplished and advanced level skill proficiencies. Figures 5 through 8 illustrate acquisition for four career paths: material deployment, machining, finishing, and generalist.

These career paths give front-line workers the opportunity to direct their careers and to master many skills. They also support the self-managed teams that provide associates with autonomy and responsibility on the shop floor. The work design gave SNO a body a highly skilled efficient work teams and gave individual workers opportunities to learn and to chart their own careers.

The links between the new process design and subsequent workforce design is clarified in a comparison of Figure 4 with Figure 3. For example, the three manufacturing elements of the new process (machining, finishing, and, packaging), were all specific skills that each associate was expected to have. Also, certain departmental jobs were eliminated (e.g., final inspection was removed as a unique process step), while quality became a specific skill for all manufacturing associates. Thus, quality was integrated into the work design and each associate was to develop baseline proficiency.

The progression from process redesign to the new skill system design demonstrates how *these skill paths translate the manufacturing process into the actual individual requirements needed to make it work.* Since the manufacturing process is embodied in the skill blocks, the skill system conveys the logic behind the process to each employee.

The work design goes further. By establishing self -directed work teams and requiring everyone to develop team skills, the work design eliminates management layers and, thus, encourages direct communication between management and front-line employees. It also gives teams freedom and encouragement to come up with innovative and spontaneous solutions to problems.

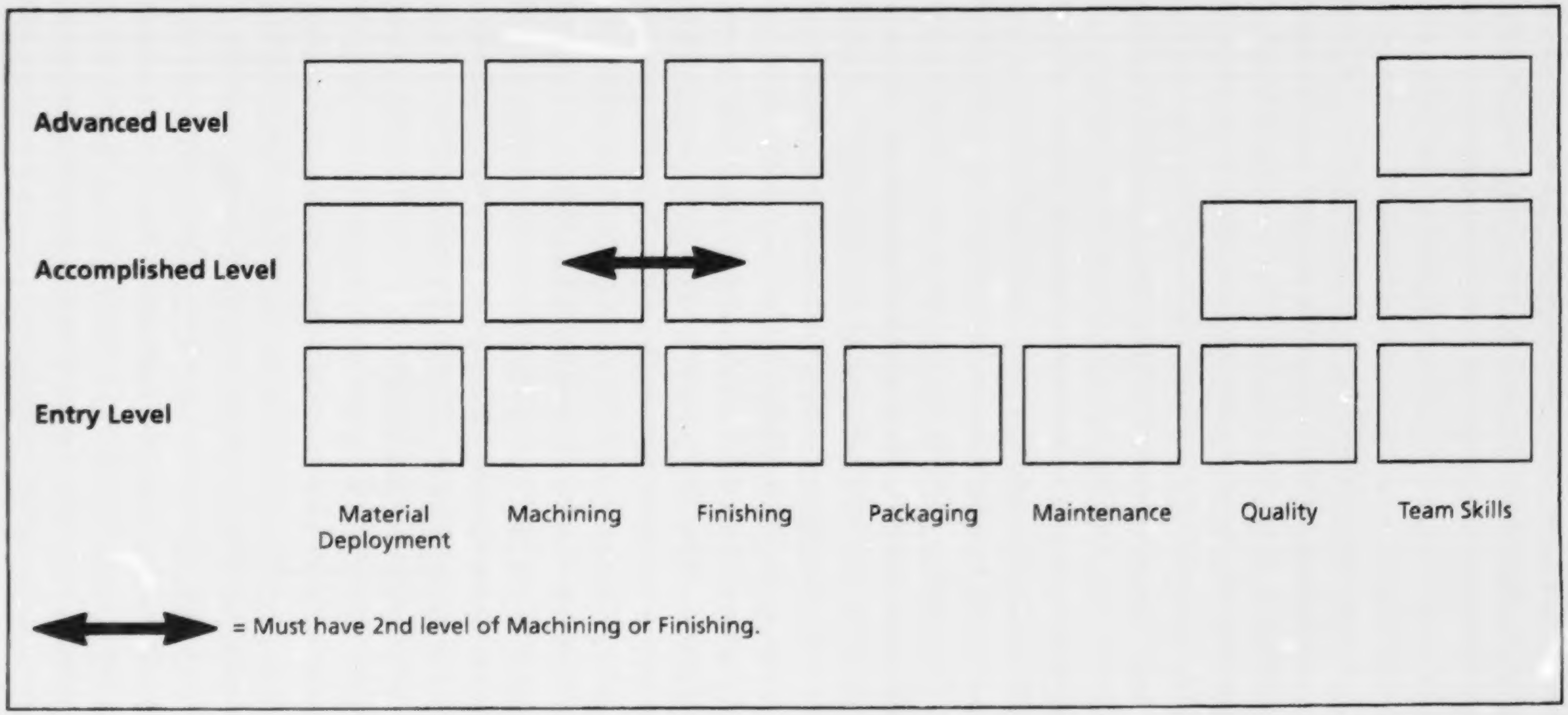
Advanced Level
Accomplished Level
Entry Level
Material Deployment
Machining
Finishing
Packaging
Maintenance
Quality
Team Skills
= Must have 2nd level of Machining or Finishing.

Figure 5. Material deployment career path.

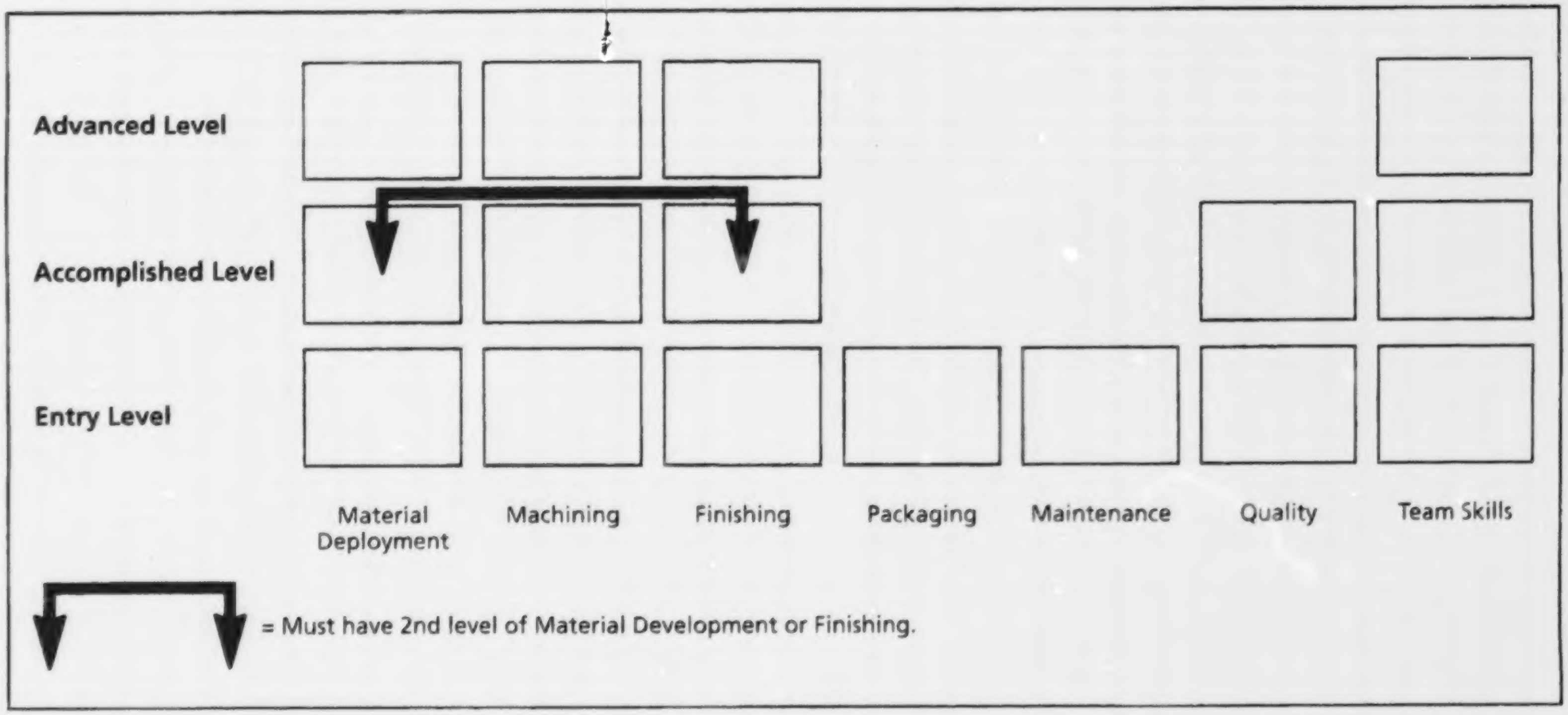
Advanced Level
Accomplished Level
Entry Level
Material Deployment
Machining
Finishing
Packaging
Maintenance
Quality
Team Skills
= Must have 2nd level of Material Development or Finishing.

Figure 6. Matching career path.

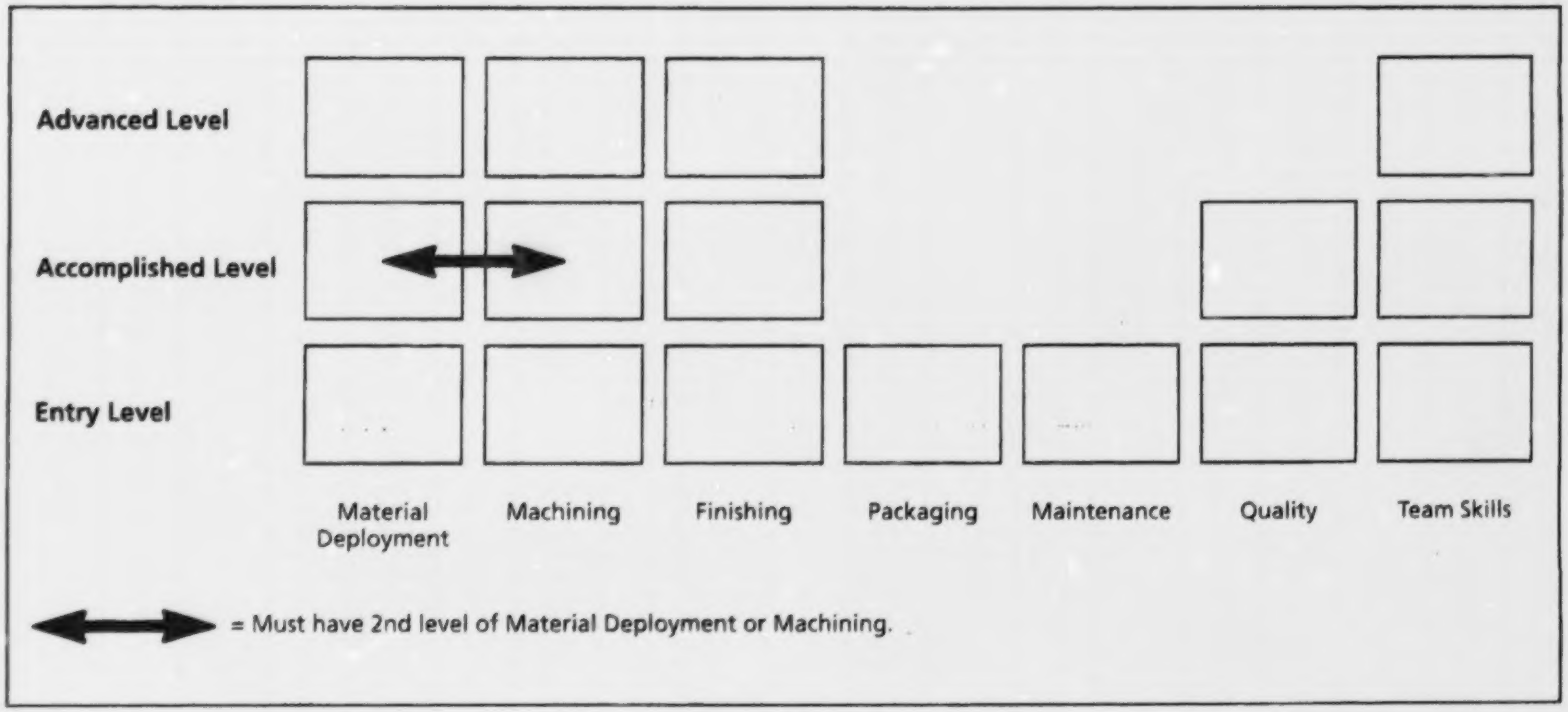
Advanced Level
Accomplished Level
Entry Level
Material Deployment
Machining
Finishing
Packaging
Maintenance
Quality
Team Skills
= Must have 2nd level of Material Deployment or Machining.

Figure 7. Finishing career path.

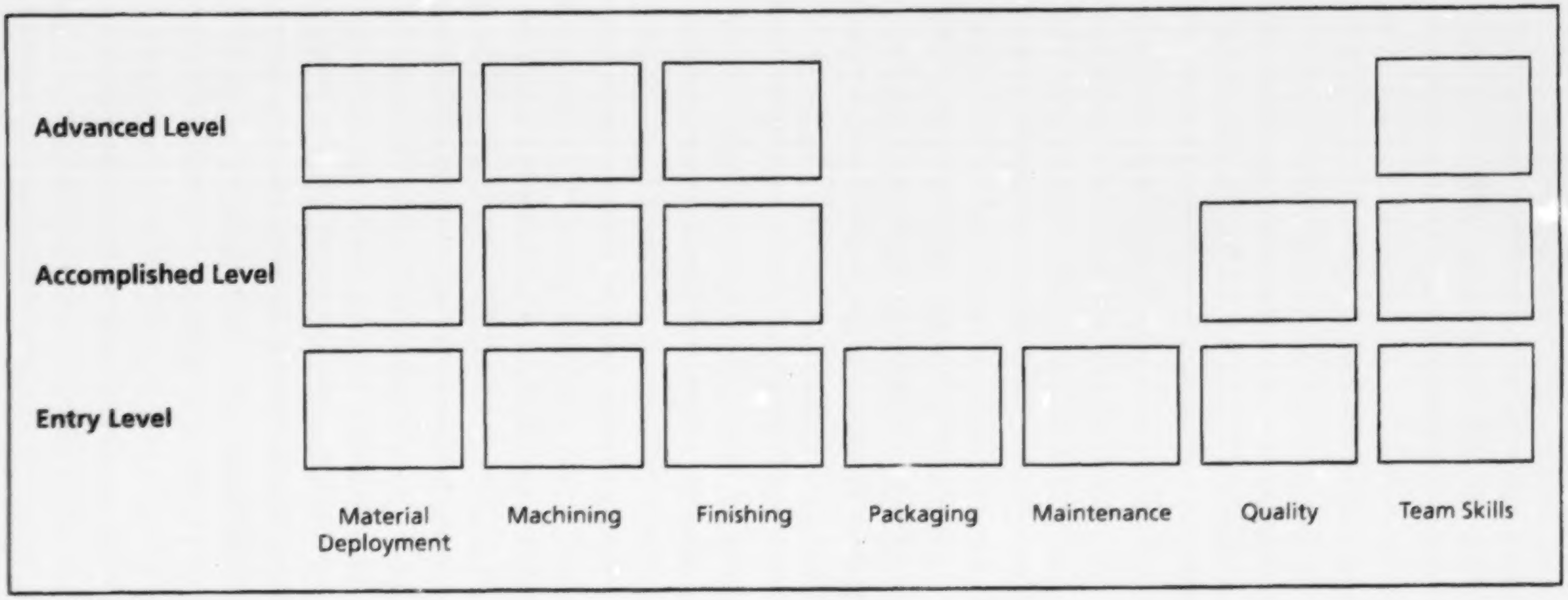
Advanced Level
Accomplished Level
Entry Level
Material Deployment
Machining
Finishing
Packaging
Maintenance
Quality
Team Skills

Figure 8. Generalist career path.

Team-Based Compensation Design

A critical element in supporting the successful work design is a compensation plan that aligns individual behavior with company objectives. In the HIPS manufacturing unit, employees were compensated for developing new skills. The compensation plan aligned individual and process goals, demonstrating to employees that they could contribute to process improvements and results through improving their own skills and making demonstrable improvements to product quality.

Skill-Based Pay

A key element of HIPS compensation plan was the skill-based pay program, which was designed around the career path plan. Each career path included a mastery of core skills and 13 skill blocks. Each block, in turn, had a specific pay rate assigned, based on a common entry rate (see Figure 9 for a model with hypothetical figures. Pay steps 1 through 7 correspond to the entry level blocks required of all associates, while Level 2 and Level *2/3* skills (depending on the path) are voluntary. The $8.00 entry level rate is awarded to new employees possessing core skills. The progression through the first 7 blocks is $.50 per block; through Level 2 skills, $.80 per block; and through Level 2/3 skills. $1.00 per block.

In order to initiate the skill-based pay program, the HIPS unit assessed all associates for their current skill attainment and placed them accord-

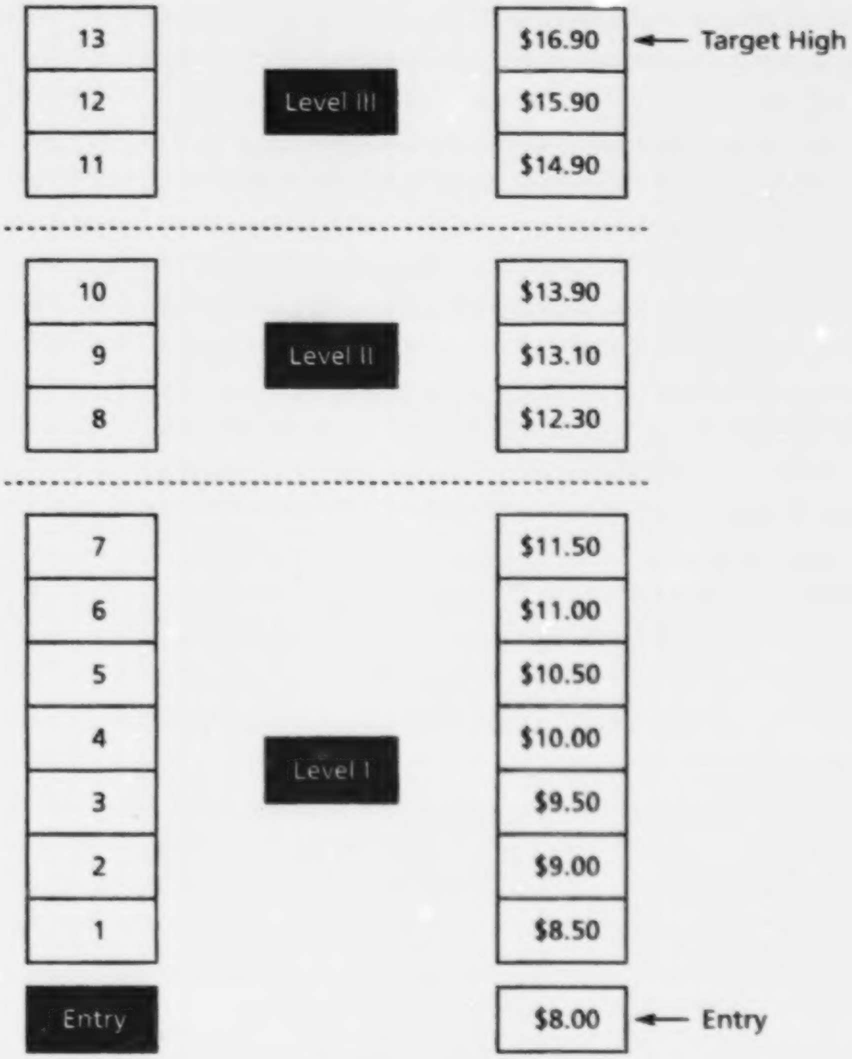
13
12
11
Level III
$16.90
$15.90
$14.90
Target High
10
9
8
Level II
$13.90
$13.10
$12.30
7
6
5
4
3
2
1
Level I
$11.50
$11.00
$10.50
$10.00
$9.50
$9.00
$8.50
Entry
$8.00
Entry

Figure 9. Skill-based pay structure.

ingly in the new structure. HIPS based the assessments on the following three objective criteria:

- *Knowledge.* The associate shows mastery of the requisite job knowledge pertaining to the skill block.
- *Activity.* The associate shows mastery of work tasks required in the skill block.
- *Results.* The associate demonstrates an effective result of the skill block.

HIPS set up a schedule for attainment of each skill block in anywhere from 6 to 24 months, depending on the level. Meanwhile, SNO employed local and regional educational institutions to develop objective instruction manuals and testing procedures for each skill block.

Goalsharing

While the skill-based pay plan was designed to provide individual rewards and provide employees with incentives for personal growth and development, Goalsharing provided a group incentive for team results.

Goalsharing involved all HIPS manufacturing associates (hourly, salaried nonexempt, and salaried exempt personnel). Based on the concept of the "enterprise report card," it involved four sets of goals associated with the manufacturing process, as follows:

- *Customer focus:* Meeting customer quality requirements.
- *Operations focus:* Meeting manufacturing cost goals.
- *Financial focus:* Meeting cycle time expectations driven by the cost of capital investment.
- *Innovation and learning focus:* Meeting development objectives.

HIPS developed the "report card" concept as the basis for a program that rewarded manufacturing associates for doing the things necessary for the company to be financially profitable; operationally excellent; extraordinary in customer service; and, progressive in personal development.

Under Goalsharing, measures would change annually for each goal to coincide with changes in the manufacturing process (see Figure 10 for a summary of the goal categories and first year measures). Each goal has a performance range associated with a threshold (award minimum), target (expected unit objectives), and maximum level (the highest realistic performance level that garners compensation increases). Figures 11 and 12 illustrate examples of hypothetical goalsharing measurements and payouts.

Goal	First Year Measure
Customer Focus	Quality Index
Operational Focus	Conversion Cost
Financial Focus	Lead Time/Cycle Time
Innovation and Learning	Skill Acquired Index

Figure 10. Goal categories and measures.

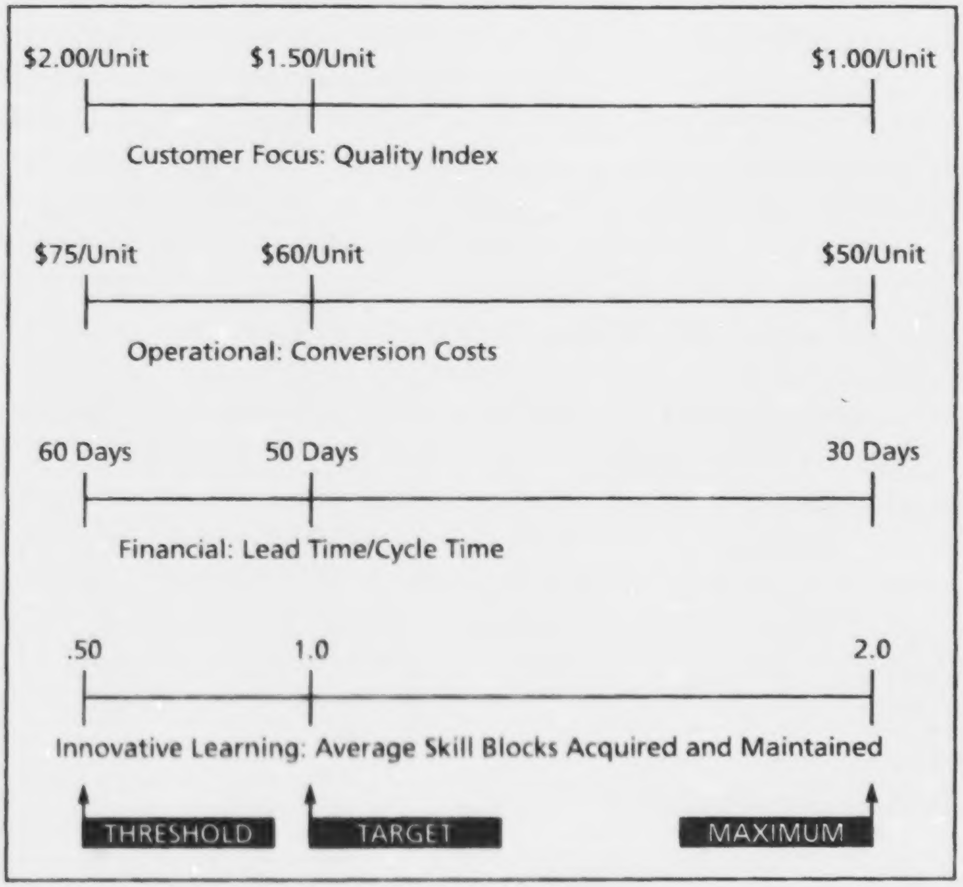
$2.00/Unit
$1.50/Unit
$1.00/Unit
Customer Focus: Quality Index
$75/Unit
$60/Unit
$50/Unit
Operational: Conversion Costs
60 Days
50 Days
30 Days
Financial: Lead Time/Cycle Time
.50
1.0
2.0
Innovative Learning: Average Skill Blocks Acquired and Maintained
THRESHOLD
TARGET
MAXIMUM

Figure 11. Goal sharing measurements.

Goals and Weights	Threshold	Target	Maximum
Customer (15%)	0%	.375%	1.5%
Operation (45%)	0%	1.125%	4.5%
Financial (30%)	0%	.750%	3.0%
Innovation and Learning (10%)	0%	.250%	1.0%
Total (100%)	**0%**	**2.500%**	**10.0%**

Figure 12. Goal sharing payout matrix.

Each goal is weighted and paid independently from the others. The hypothetical target in Figure 12 is 2.5% of the base pay budget and the maximum payout is 10%. Payouts are shared equally by employees. The Goalsharing program was implemented in a dry-run roughly six months before going "live." When individual compensation for skill-based pay was added to the target incentive, the result was above-market compensation for excellent performance.

Team Maintenance

A critical element of success for this type of transformation is team self management. The HIPS unit employed two specific approaches to enable the teams to develop the skill and capability to deliver effective results. The first approach involved specific "team" skill blocks, which were part of the work design and compensation system. Additionally, the HIPS team utilized a "starpoint" system (Figure 13) in which each team member was assigned a team role on a rotating basis. In that way all associates are involved in managing the day to day affairs of the team.

Program Implementation

Implementing the HIPS redesign required significant production changes, including a substantial infusion of capital equipment, and, thus, months of preparation. There were also numerous changes in technology and other supporting systems. Overall, it took about to a year of planning to implement the initial HIPS program.

Implementation of the integrated system included the following steps:

- *Orientation:* Extensive meetings as well as one-on-one sessions with associates conducted months before implementation.

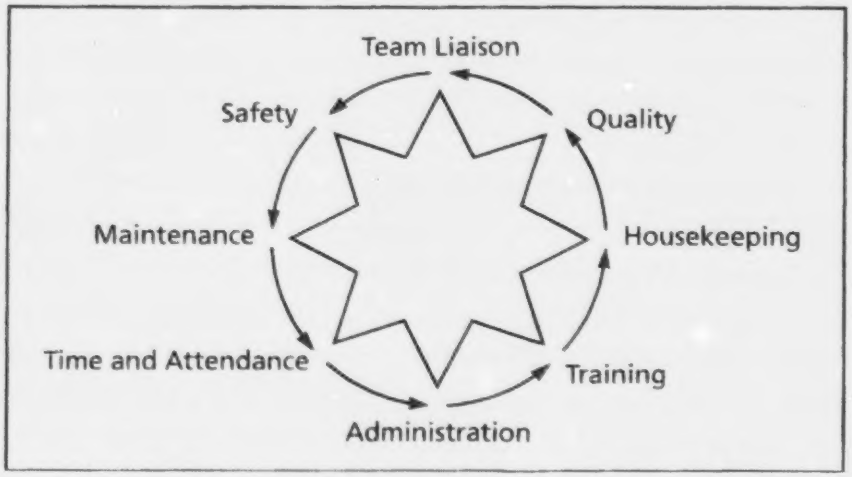

Figure 13. Team starpoint system.

- *Individual assessments:* Paper-and-pencil tests for core criteria, plus a thorough review of entry-level skill blocks for every associate.
- *Grace period for skills development:* Identification of core or entry-level skill gaps for each associate; and provision of a grace period of up to five years for associates to master core skills and entry-level skill blocks before pay would be reduced.
- *Career path requirements:* Development of a training and job rotation plan to manage team member development so members would be able to meet the skill block rotation deadlines.
- *Base pay transition:* A phase-out of the previous base pay policy for team members when skill-based pay was introduced.
- *Performance management:* Progress reviews of each team member at least every six months, addressing current job performance and members' career path movement.

Lessons Learned

Three lessons emerged from the HIPS experience about the value of an integrated, radical approach to organizational transformation:

- Combining organization process and work redesign provides a foundation for significantly and radically transforming an organization.
- Integrating work and rewards design aligns skills development, base pay, and performance-based incentives with strategic goals.
- Providing employee ownership of the redesign process increases the knowledge of the employees involved and boosts companywide investment in the change process.

In addition, a number of lessons were learned regarding implementation:

- *Implementing takes as much as or more time to accomplish than designing.* Initially, management and employees focused on program design, but implementing took more effort than expected.
- *Several supporting system changes are necessary.* Despite careful and detailed planning, the work and reward systems changes required changes in finance, information resources, organization, and physical plant, among others. The new approach also required changes in the culture. SNO was able to raise many cultural issues and tackle them one-by-one by holding numerous small group meetings and discussions with a broad cross-section of employees.
- *Champions were a significant factor for success.* The Division enlisted managers' and key employees' support companywide to help design

and implement the program. These individuals served as key references and spokespeople for the program, and they helped with the transition.

NOTE

1. An earlier version of this case study appeared as, "Work and Rewards Redesign at Smith & Nephew," by N. Fredric Crandall, Marc J. Wallace, Jr., and Daniel Bisgeier, in *Compensation and Benefits Review*, Special Report, 1997.

Part V

CONCLUSIONS

In the last chapter (Chapter 14), Cardy integrates and expands upon themes presented throughout the book.

CHAPTER 14

HRM AND THE VIRTUAL WORKPLACE

Some Concluding Observations and Future Directions

Robert L. Cardy

ABSTRACT

This chapter provides an overview of the topic of HRM and the virtual organization. The concept of the virtual workplace is considered and distinguished from the traditional workplace. The remainder and thrust of the chapter identifies HRM caveats in regard to the movement toward the virtual workplace and explores implication of the virtual environment for practice and research in HRM. The chapter argues for the importance of people and for the effective management of people in organizations. The topics of job analysis, selection, training, performance appraisal, and compensation are explored within the context of a virtual organization. The thrust of the chapter is on identifying forms of these HRM functions that will maximize effectiveness in a virtual context.

INTRODUCTION

_____ **1.** HRM will adapt to the changing workplace landscape and become a key to success for virtual workplaces. **True or False**?

_____ 2. HRM will eventually be automated and outsourced to the point that the profession will be threatened with extinction. **True or False**?

The answer key to the above items is currently being written. Which way the answers go depends on us and our capabilities to shepherd our field through the dramatic changes that are already taking place in the workplace. One conclusion that seems inescapable from the chapters in this volume is that the world is changing. To remain effective, HRM must also change. My purpose in this chapter is to consider some of the things we've learned about the virtual workplace and then to look at where we are, or should be, headed in HRM. Specifically, some caveats regarding HRM in virtual environments are identified and directions for practice and research are discussed. First, the topic of the virtual workplace will be briefly reexamined.

The Virtual Workplace

As is clearly seen in this volume, the virtual workplace is not a unitary phenomenon. Virtual connections can exist in a variety of settings and for a variety of purposes. Table1 presents examples of various types of virtual arrangements and arrays them along a dimension of the extent to which the virtual aspect is an integrated and key feature of the organization. There are two levels of examples of virtual arrangements, both taken from chapters in this volume. As pointed out by Wallace (2002), telecommuting, front line, and cyberlink represent three progressive examples of virtual workplaces. In Table 1, telecommuting provides an operational example of the virtual workplace, but at a low level of integration. That is, in the typical organizational situation the virtual connection utilized in telecommuting does not come to be a feature integral with the organization. Rather, the virtual characteristic is an ancillary add-on that allows the accommodation of schedules and travel preferences. The front line case provides an operational example of a much more integrated form of virtual connection. Employees in customer locations who share knowledge with each other and with their home company may no longer have a physical presence in the organization which employs them. The virtual connection in the front line situation is integral with at least some portions of the organization, such as sales and/or technical service. In the cyberlink model, teams composed of people representing various perspectives, organizations, and geographic locations are virtually connected. In this type of arrangement, the virtual connection is part and parcel of the organization and is characteristic of all portions of the organization.

Table 1. Virtual Integration and Extent of a Shared Framework

Operational Examples	Telecommuting Model	Front Line Model	Cyberlink
Organizational Form		Horizontal Organization	Alliance
Virtual Integration	← Lower		Higher →
Shared Framework/Culture	← Higher		Lower →

Other levels of examples and distinguishing characteristics could also be included in Table 1. For instance, the organizational forms identified by Heneman, Tansky, and Tomlinson (2002) could be arrayed as progressive examples of the extent of integration of virtual connection. In general, alliances and cellular organizations would be expected to most strongly embrace and utilize the tool of virtual connectivity. There are also underlying characteristics that change with the level of virtual integration. As identified by Ellingson and Wiethoff (2002), a number of characteristics may distinguish virtual organizations from more traditional organizations. For example, as virtual connections become more integral with an organization, the organizational environment would be expected to become more dynamic, flexible, and fluid. The work would be expected to consist of multiple projects and teams.

In sum, the above discussion indicates that the virtual workplace can take a variety of forms. The distinction between traditional virtual workplaces is not a dichotomous categorization, but a matter of gradation. Virtual is a dimension along which organizations can progress. However, it is expected that the progression will continue over time and more organizations will embrace virtual connectivity and increase the extent to which it is integrated within the organization. While it may take time, it is assumed here that organizations will become increasingly virtual, with the totally virtual workplace being the natural and pinnacle end point of this trend. Given this assumption and for the sake of simplicity, most of the comments in the remainder of this chapter are made in regard to the virtual workplace as a unitary phenomenon. Clearly, various levels of virtual integration can be identified. However, for the most part the comments and implications made in the rest of this chapter will not differentiate between variants of virtual connections. Many of the comments are made with the totally integrated virtual workplace in mind. The focus of the remainder of this chapter is to identify HRM caveats in regard to the movement toward the virtual workplace and to explore implication of the virtual environment for practice and research in HRM.

HRM CAVEATS AND IMPLICATIONS

Culture: The Importance of a Shared Framework

A final but critically important characteristic included in Table 1 is a dimension representing the extent of a shared framework or culture. As virtual connection becomes a key ingredient of an organization, the culture of the organization would be expected to become less identifiable and more difficult to mold and change. There are numerous features that lead to this expectation. For example, less face-to-face contact, lack of a consistent physical space in the employing organization, an increasingly dynamic environment, and broadened performance expectations can all contribute to ambiguity regarding organizational identity and norms. In an extreme but realistic case of virtual connection, team members may have never met face-to-face and may only work temporarily together on a particular project. In this case, it is possible that no organizational culture exists. The team members may not even be employed by the same organization. Or, even if the team members are employed by the same organization, it is possible that none of them have a workspace at the organization and they may have spent very little if any time at a common organizational location. In other words, virtual connectivity allows for independent contractors to pool their talents and focus on a common project. However, employee independence and potential distance, both physically and psychologically from each other and from the employing organization can mean the absence of a shared framework.

How should a work problem be approached? What are the norms regarding decision making? For example, should small decisions be made unilaterally or should a premium be placed on participation? What are the priorities and values that should guide the work effort? How should interactions be conducted? How should disagreements be resolved? How important are the ends versus the means used to achieve those ends? What's really important and what's rhetoric? These and many other similar questions are often implicitly answered via the shared framework of a common culture in a traditional organization. However, as virtual connection becomes integral to an organization's structure and process, these questions may have no good answers, either explicit or implicit. The virtual nature of the workplace and lack of a common history may leave a virtual team with no culture to rely on.[1]

What's the problem with a lack of culture? In a word, plenty! Reviewing the organizational behavior literature on the importance of culture is beyond the scope of these concluding remarks. Suffice it to note, however, that a shared framework among workers can be critical to organizational effectiveness. What is it that sets, for example, Southwest Airlines apart from its competitors? It certainly can't be technology or financial resources that are unique and are difficult for the industry to duplicate. The advantage of Southwest has to do with the other primary resource of organizations: people. More specifically, Southwest has been able to put together an offbeat set of practices and rituals that its employees find energizing and empowering (Freiberg & Freiberg, 1996). Employees at Southwest share a common framework which emphasizes customer service, the authority to take action and solve problems, and have fun! Because of shared experiences such as celebrations and managers in costume, the employees share a set of norms that guide their actions and comprise a more cohesive whole. This shared framework, or culture, is an important source of competitive advantage. It is difficult to quickly imitate and would be very difficult to develop in a virtual environment.

The culture of an organization can be viewed as a set of distal stimuli from a cognitive perspective (Neisser, 1967). That is, the array of practices, rituals, and so on that make up the culture of an organization (Schein, 1985) are external stimuli to the employee observing and experiencing the organization. If these external stimuli are of sufficient strength and interpreted as intended, a common cognitive framework among the workers will develop (Bogner & Barr, 2000). From a cognitive perspective, a shared cognitive framework is the essential outcome of organizational culture. A cognitive framework, or schema, guides our entire perceptual process, from sensation to action and the framework we utilize influences what we notice and attend to, how we interpret what is going on, and what we do about it. If this framework is shared among organizational members it can dramatically smooth and streamline what occurs in the organization. For example, shared beliefs, values, priorities, and a common understanding regarding process and actions means quicker processing, fewer conflicts, and less time spent off task negotiating and interpreting. Speed and a common focus are two primary competitive outcomes that can arise from a shared cognitive framework. Interactions can occur more smoothly and quickly and the common understanding would lead to fewer surprises at checkpoints along the way to project completion.

A serious and perhaps underrated problem with a virtual workplace is the lack of organizational culture. More specifically and from a cognitive perspective, the problem is the lack of distal stimuli that can be manipulated in an attempt to engender a common cognitive framework. In a virtual setting, the cues that might be used to build a common framework would be less salient and powerful than in a traditional face-to-face setting. Further, the potential lack of common organizational history among the workers and the temporary nature of the interaction would further make the development of a common framework difficult. Without a common cognitive framework, the team members would have differing expectations, values, and so on. Further, they would lack the potential energizing and motivating effect that such commonality can provide. In short, a competitive advantage due to deliberate development and nurturing in a traditional environment can be lost when moving to a virtual arrangement. A common framework would also be very difficult to develop in a startup virtual organization. While there do not appear to be easy answers to this problem, the following section attempts to identify implications of this issue for practice and research.

Implications

Practice

The fluid and dynamic nature of a virtual workplace makes it difficult to establish a common framework, in the very situation in which it would be most critical. Given the rapid pace of change and simultaneous membership in multiple and temporary project teams, it would be no surprise if employees were unclear as to the direction of their organization and its guiding values. It is unlikely, however, that this problem will stand in the way of progressing toward greater virtual connection in workplaces. What might be done to address the issue of the lack of a shared framework?

First and foremost, it is my opinion that the topic of a shared framework is too important to ignore. There are steps that can be taken that should alleviate, if not entirely remove, the problem. Given the "noise" inherent in the dynamic environment of a virtual workplace, it is important to raise the strength of the "signal." That is, given uncertainty, fluidity, and maybe chaos, it is imperative that stimuli designed to engender a common framework be strengthened. Does every worker know the essentials of the mission of the organization? Could they describe the core values and vision behind the organization to someone else? If not, steps must be taken to assure this is common knowledge.

While perhaps "over the top" in a traditional "face-to face" organization, the mission statement for the virtual organizations should be disseminated to all employees. This dissemination could be done electronically and consist of a typical written statement. Video description could also be used as well as hard copies of the essentials for employees to carry with them, much like the Ritz Carlton practice of issuing employees mission statement cards.

In addition to a cognitive understanding of the mission, vision, and values of the organization, employees should have a "feel" for what the organization is meant to be about. Activities that bring together workers in a face-to-face manner can be utilized as means to bring the intended culture of the organization to life. While technology enables faceless contact, the human part of the workplace equation calls for personal contact. For humans, meaning and understanding don't so much come from cold description, but seems to come more from observation, experience, and relationships. To borrow a point used by Robyn Dawes in the context of human judgment (Dawes, 1999), it is probably the experience of the organization's story and not just assertion of facts that promotes understanding and meaningfulness. Asserting that an organization's central focus is customer service would likely be insufficient in most cases to engender understanding and motivation in employees. It is the stories of, for example, heroic incidents of customer service that enable Nordstrom to successfully convey to its workforce the centrality of customer service and the extent to which they are empowered to pursue it. As pointed out by Ellingson and Wiethoff (2002), technology does not preempt the need for face-to-face interaction. Just because technology makes something possible, such as totally faceless interaction, that doesn't mean it should be done. If a strong shared framework is important, it is likely to only come from direct shared experience.

In sum, the above discussion underscores the significance of taking steps to make the mission and values of a virtual organization explicitly clear. There are a variety of steps that can be taken to develop a common framework, and we have explored a couple here. It seems likely that to be successful, attempts to develop a common framework will need to include a variety of tactics. For example, in addition to using multiple modes to disseminate information, organizations can use celebrations, informal gatherings, and meetings that include behavioral illustrations that represent enactment of the values of the organization as ways of developing and maintaining a common framework. Whatever the specific tactics, the critical point here is that a common framework in a virtual environment will likely require an active and focused approach.

Research

A primary and direct implication of the discussion concerning a shared framework is to empirically test the importance of employees sharing a common framework. How much of an impact does a shared framework have on bottom line indicators such as time to completion, productivity, and profit? Answering this question will require field work that captures the extent of shared framework among employees and relates it to outcome measures. While the research would be of a macro nature, the shared framework variable should measure the perceptions of employees, not the distal stimuli in the organizational environment meant to develop and maintain a shared framework. Such research would directly assess the relationship between a shared framework and performance. A critical outcome of such empirical investigation would be estimates of the value of engendering a shared framework. Thus, value systems and philosophies aside, the question of whether it makes a difference in the bottom line could be addressed. If positive, such findings might be the most convincing evidence of the importance of going beyond the virtual connection and including face-to-face encounters.

The virtual workplace could be seen as relatively easy to manage and some managers may need compelling reason to go through efforts that are necessary to develop and maintain a common framework among employees. One academic recently observed that in his consulting experience, there seems to be many Theory X (McGregor, 1960) managers attracted to the establishment of virtual work arrangements (Keller, 2001).

Principle reasons for this attraction for control oriented management seem to be expected cost savings, such as decreased office space (Wallace, 2002), and increased control of workers though the use of electronic measures of activity. The virtual workplace could be the ultimate liberation and empowerment for workers. However, the same technology could be used to treat workers as simply another cog in the organizational machinery. The human resource, then, is simply a set of expendable skills that can be brought together most efficiently in a virtual manner. While the technology and organizational structure may be cutting edge, the treatment of the worker in this approach goes back to the principles of scientific management (Taylor, 1911).

As a professional and scientific domain driven by ethical principles, it behooves us to demonstrate to those who might take a Theory X approach to the virtual workplace that the human resource is something more than another cog in the wheel. Empirical evidence of the importance of a shared common framework can be a starting point. An estimate of the dollar value of a shared framework can help convey that the human element is something more than another resource to be arbitrarily picked out and placed together as seems best at the moment. As has been pointed out elsewhere in this volume (Snell, Stueber, & Lepak, 2002), there may be more than transactional economics involved when dealing with the human resource. Developing a sense of team and understanding of mission and values is not just preoccupation with soft skills, it may make compelling business sense. Even the most hard nosed Theory X manager may take notice of this assertion if it's backed by empirical evidence.

A second area for research is in examining mechanisms for effectively developing shared frameworks in a virtual environment. Both theoretical and empirical work may be needed on this topic. What techniques can be used that will work quickly, yet result in developing the desired framework? Could virtual technology be used to effectively develop a shared framework? Are there individual differences that influence the effectiveness of these approaches? These and other issues are awaiting research on techniques for developing shared frameworks. Certainly, there are techniques currently used to establish and maintain organizational cultures, and these approaches shouldn't be ignored. However, the virtual environment may place a premium on rapid outcomes and call for unique techniques.

HRM Functions: A Conceptual Reconsideration

The virtual workplace can bring with it substantial change to how HRM is carried out in organizations. For example, many of the functions might be outsourced. Those that remain could be changed dramatically in their delivery through the use of technology. This section examines some of the issues and implications regarding HRM in the virtual workplace.

Outsourcing and HRM

A critical first issue is the outsourcing of HRM functions. Is this a good thing? Certainly, there is the advantage of jettisoning some of the more routine and bureaucratic aspects of HRM. However, on net, the outsourcing of HRM functions bodes negatively for the HRM profession and the organization. Outsourcing of routine and noncore functions is based on a simple financial consideration. The financials, however, may not work out as much to the advantage of outsourcing as might be thought (Snell et al., 2002). Beyond the financial consideration, outsourcing of HRM functions can send the message that the human resource and its management is not a priority of the organization. Some functions might be routine and easily done outside of the organization, but there may quickly come a point where shifting HRM functions to external parties can be a negative factor. For example, who better understands the people in the organization and what their unique needs and circumstances might be? Making accommodation for individual preferences and needs and being flexible in order to maximize motivation and performance are some of the advantages of an in-house approach to HRM. These advantages could easily be lost with outsourcing. Again, dealing with the human resource should go beyond simple transaction economics.

The above contention is based on the position that the human resource is something unique and qualitatively different than other cogs in the machinery. As pointed out by Ulrich and Beatty (2002), generic resources can most effectively be managed in a transactional manner and can be dealt with as a market commodity. The argument being made here is that the human resource should be viewed as a unique asset. Even production line workers can be an invaluable source for improvement and innovation. Those of us in the HRM field, in particular, should be quick to view employees as a unique asset and should steadfastly insist that they be treated as such. As practitioners, academics, and researchers, one of our most important roles may be to remind managers of the uniqueness of the human resource and what this implies for management practice. If the human resource is viewed as a unique asset, an organization would be reluctant to relinquish many aspects involved in managing the asset. Outsourcing and downsizing should be done only after careful consideration.

HRM Functions

As seen in the chapters in this volume, the virtual workplace brings with it substantial change for HRM functions. If HRM practices do not keep pace and facilitate the rapidly evolving workplace, the functions will be done by others. As just discussed, this could take the form of outsourcing. However, outsourcing is not the only option. Line management may jettison the HRM conduct of a number of functions and take over the functions themselves. While the relative lack of expertise may result in less than maximally effective or legally defensible practices, the result will be a weakened or nonexistent HRM department (Cardy, Gove, & DeMatteo, 2001). Why would organizations jettison or replace HRM efforts? The bottom line answer is because HRM is not seen as a value-added function. Our emphasis on analysis, documentation and legal defensibility can easily be perceived as a paper shuffling bureaucracy. As a profession, we can't afford to be complacent regarding such perceptions. We need to streamline the bureaucracy and keep it to a minimum. What bureaucracy remains must be explained and justified to the line function. Further, we need to widely broadcast rationale for the importance of the human resource and its management and empirical evidence (e.g., Huselid, 1995; Pfeffer, 1995) of its bottom line impact. Probably most important, we need to shift HRM practice and research so that it reflects and is relevant to today's dynamic workplace and the progress toward virtual organizational frameworks. The remainder of this chapter will consist of a conceptual reconsideration of the HRM function. My purpose here is not to repeat what has already been said in the preceding chapters or to delve too greatly into operational specificity. Rather, my intent is to try to identify some basic and underlying themes in regard to HRM in virtual workplaces. The chapter next considers implications of these characteristics for practice and research.

Table 2. HRM Function Characteristics in Traditional and Virtual Workplaces

Selected HRM Functions	*Workplace*			
	Traditional		*Virtual*	
Job Analysis	Task oriented	Future oriented	Role analysis	Person analysis
Selection	Technical skills • fit into narrow job descriptions		Interpersonal skills • personality Broad skills • flexibility to fit into a variety of roles	
Training	Deficit based		Learning/improvement based	
Performance Appraisal	Top down and supervisor driven Narrow focus on behaviors or outcomes directly related to production or service delivery		Emphasis on customer and other sources Developmental Broad, interpersonal, and other process characteristics	

Table 2 summarizes some of the underlying distinctions between selected HRM functions in traditional and virtual workplaces. A seemingly mundane but fundamentally important HRM function is job analysis. As discussed by DeCaprio (2002), job analysis must be adapted to the dynamic environment of the virtual workplace. However, the virtual workplace is a matter of degree. Thus, job analysis may need to take on a variety of forms depending upon the degree to which virtual connectivity is integrated with the organization. Given that jobs change in the dynamic environment of a virtual workplace, the assumption of the job being a relatively fixed characteristic is false. Alternative job analysis approaches should be identified and utilized. The approach Scneider and Marcus-Konz (1994) developed can be used to make job analysis more future oriented. The technique may best fit in a situation where there is a planned change and the new work situation can be fairly clearly anticipated and described. What if the work environment is characterized instead as consisting of constant change?

As simply presented in Figure 1, the work situation can be conceptualized as made up of fixed and changeable tasks. In a traditional work environment the majority of tasks would be categorized as fixed or repetitive activities and changeable tasks would be relatively infrequent. While again a matter of degree, in a virtual environment a much greater proportion of tasks would be categorized as changeable. In the extreme, all of the tasks might be changeable. For example, a totally project-oriented environment may mean different projects from one week to the next and maybe very different project involvements going on simultaneously. From a job analysis

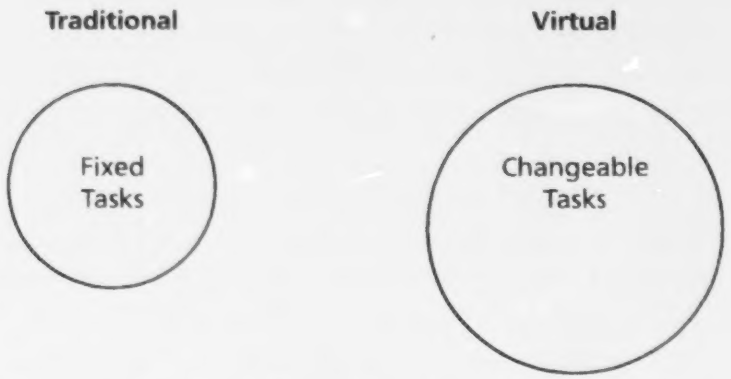

Figure 1. Fixed and changeable tasks in traditional and virtual workplaces.

perspective, the problem is: How can constancy be found when everything is changing? There are at least two possibilities that might apply in the context of relentless dynamic change.

Role Analysis

While there may not be constancy at a task level of analysis, it may be found in the roles employees engage in. For example, projects and technology may change and alter task activities, but roles such as team leader, facilitator, technical expert, and so on may be a consistent aspect laid over the volatile task content. If this is the case, then job analysis should shift to role analysis. Role analysis would convey a sense of consistency in an otherwise dynamic and possibly chaotic environment. Further, role analysis would result in criteria that would reinforce the effective enactment of the roles found to be important in the organization. As with a typical job analysis, role analysis could drive selection, training, performance appraisal, and compensation. Employees might be selected for particular roles or for a variety of roles. Appraisal, training, and compensation decisions based on role criteria would clarify the performance domain for workers and improve the level of role performance.

The possibility of the constancy and importance of roles has a number of implications for practice and research. What are the roles? Initial work supports the importance of a role level of analysis (Welbourne et al., 1998), but just what roles might be important in various virtual workplaces deserves examination. Further, to what extent do employees play different roles across time and teams? Certainly, issues of team membership and changes in team composition impinge on the roles employees play (Cardy & Stewart, 1998). However, employees might cling to roles they are most comfortable with or that they feel they are most proficient at, but to the detriment of team performance. Explicit role descriptions that would result from role analysis may aid in making clear the need for engaging in different roles. If done at a behavioral level, the role descriptions could assist employees in determining how to best enact their various roles.

Person Analysis

What if the work environment is so dynamic and fluid that roles are not clearly differentiated? For example, employees might all be viewed as associates with equal responsibility for all functions. In such a situation, roles might emerge over time, but may not be part of the intended organizational design and may be a function of the particular people serving as employees. The intended design may include people in the generic and broad role of employee. In this type of situation, what may be most appropriate is to focus at a person level of analysis, rather than a role level. In other words, if consistency can't be found at a task or role level, there may be consistency at the person level. Employees may be expected to have certain skills, values, and personality characteristics. Although tasks may rapidly change, the means that employees should use to address the tasks may remain quite stable. As an example, Miller and Cardy (2000) presented person characteristics managers believed most important for success in their dynamic quality-oriented environments. All of the characteristics found to be most important in this person level approach to "job" analysis were related to the process of work, such as facilitating, listening, and being a team player. This is what would be expected in a situation where the content of work was in flux. In the quality environment, managers had little difficulty identifying employee characteristics essential for success (Cardy, 1993). Managers, customers, and workers in or interacting with a virtual workplace could likely also easily identify person characteristics important in a virtual organization.

Just as with a traditional job analysis, a person analysis can be used to drive HRM functions such as selection, training, and performance appraisal. Of course, what is lacking in the person analysis approach would be the job description information, but that results from the fluidity of the job content. The critical job specifications information is, however, what the person analysis approach directly addresses.

The person analysis approach seems to hold great promise for dynamic environments, such as virtual workplaces. The approach, however, needs to be tested in virtual organizational environments. Can the technique yield sufficient specificity to be useful? Are desirable person characteristics generic across virtual environments, or are there important contingency factors? Another important issue for consideration and research is the legal defensibility of a person level approach to job analysis. A job level of analysis seems to be embedded in our current legal framework. Will a person level of analysis satisfy legal requirements? If not, as a profession we may need to pursue changes to the legal framework to reflect today's organizational realities. HRM needs to be a leader in the changes going on in the workplace and if the legal framework is out-of-step and antiquated, so too will be the HRM practices.

In sum, role and person analysis are options to traditional job analysis when the work environment is dynamic, such as might occur in a virtual organization. The traditional task focused job analysis has been a staple of HRM. However, there is compelling reason for changing our approach since the very basic building block, the job, may no longer exist as a set of stable and repetitive tasks (Bridges, 1995). In order to remain a value-added partner in the business of the organization, we must change how we conceive of and analyze work in organizations.

Selection

As Ellingson, and Wiethoff (2002) discussed, the virtual workplace has important implications for employee selection. Table 2 summarizes traditional selection as typically being focused on technical skills and narrow job descriptions. In contrast, interpersonal skills and the breadth to fit into a variety of roles would typically be the focus of selection in a virtual organization. It is, again, the work process that is important, because the work content may be constantly changing. Thus, the work reality being swiftly brought about in many organizations involves getting things done in a team context and working independently yet being dependent upon virtual others in a team. On the other hand, rapid changes in technology, volatile market conditions, and changing project demands mean that specific technical skills may be of little importance, since those specific skills may soon be obsolete. What may be most important in this type of situation is a willingness to learn and change and personality characteristics that fit with the organization and make the employee an effective team member. Role or person analyses could help to identify these characteristics.

Given the importance of process and fit, how might one assess these characteristics? One important source for these judgments is the virtual teammates of the job candidates. Who better to assess a person's potential fit with a team than the virtual team members themselves? Practitioners should utilize team members in the selection process, particularly in regard to personality and fit judgments. As HRM researchers, we need to examine how these judgments might be made most effectively. How reliable and valid are team member judgments? Are fit and personality types of judgments best made in a structured or unstructured framework? What type of person characteristics are most important for various type of work process arrangements? If roles are important, are some types of people better adept at shifting roles than others? These and many other related questions begin to carve out exciting selection research possibilities and important applied issues.

Training

Training is a critical component in the virtual workplace. Particularly if specific competencies will not be a basis for selection and the competencies that will be needed change over time, then training becomes essential in order to maintain adequate performance. As stated by Noe and Simmering (2002), learning is a primary necessity in virtual organizations. It needs to occur on an on-going and as-needed basis and might be delivered via a variety of technological options.

As Table 2 illustrates, the traditional approach to training is to view it as a solution for gaps between desired and actual performance levels. More specifically, any performance shortfalls attributed to ability or knowledge are fair game for training. This deficiency reduction model is central to the HRM training model. However, in the dynamic environment of a virtual organization, what may be more important than identifying and remedying specific deficits is to approach training as the key to continuously learning and improving. The deficit reduction model focuses on assessment in order to identify gaps that might be solved through training. An extended focus on assessment can be seen as another example of HRM bureaucracy. More important, the deficit reduction approach implicitly points a finger at individuals and identifies them as somehow deficient. Who wants to be identified as deficient? With the deficit reduction approach, being singled out as in need of training is certainly nothing to celebrate.

In contrast, a learning or improvement-based approach to training focuses on the need for everyone to constantly improve. The focus isn't on reducing a deficit in individuals, but on raising the performance of everyone. It is an inclusive approach that embraces change. Operationally, the efficient distribution of information and description of how it contributes to performance are key characteristics of the learning approach.

An example of a learning approach is a program developed by Johnson Controls, called Team Rally (Roznowski, 1999). Team Rally is an annual meeting in which Johnson Control teams from around the world gather to present improvements they have developed. The teams use skits as a vehicle for delivering their message at the meeting. The event is fun and the teams focus on ways to cut time, costs, waste, and ways to improve productivity. The teams are judged on how effectively they disseminated their improvements to the rest of the organization as well as on the bottom line impact of their approach. The Team Rally approach provides an opportunity for developing a learning and improvement culture through a face-to-face activity. Further, the focus is on constant improvement, not on identifying employee knowledge deficits to be eliminated through training. Rather than a sign of an individual's deficit, Johnson Controls has shifted training into a team level and empowered improvement process.

How effective is the learning approach relative to the deficit reduction model? Which approach do employees in a virtual workplace prefer and find most useful? Which approach results in better bottom line performance? Is the best model one that combines a deficit reduction approach with a learning approach? If so, in what type of situation or for what type of performance problems should each be used? These and other questions provide interesting and relevant directions for research on training in virtual environments.

Performance Appraisal

Traditional performance appraisal has largely been approached as a top-down supervisory driven process. The emphasis of the function can probably best be summarized as focused on administrative uses, such as distributing merit pay or making decisions regarding whom to promote or to downsize. The content of traditional appraisal has been on behaviors or outcomes directly related to accomplishment of the tasks involved in producing the product or in providing the service. However, the dynamic and dispersed nature of the virtual workplace requires basic changes to the typical approach to performance appraisal (Cleveland, Mohammed, & Skattebo, 2002).

In a virtual organization, a manager may have little direct contact with employees. As mentioned earlier, a Theory X manager may approach the situation using technology to keep tight control over countable discrete behaviors and/or outcomes. Such a focus can be dysfunctional (e.g., Cleveland et al., 2002) and would certainly not be expected to capture all important aspects of performance in a virtual environment. Enlightened management will recognize that it is the process of work that is critical and will turn to sources such as internal and external customers to make assessments of the worker's process performance. In addition, the learning required to be competitive would be expected to push performance appraisal more toward a developmental activity focused on feedback and improvement. As mentioned earlier, role or person-based analyses can be used to identify person characteristics important for succeeding in the virtual workplace. Performance appraisal would be expected to be associated with these characteristics.

There are a number of interesting issues that need to be addressed in terms of effective performance appraisal in virtual workplaces. First, what criteria are best assessed by which sources? For example, external customers, internal customers, teammates, and managers may all be in positions to best assess different sets of criteria. Is there a difference among sources of appraisal in terms of acceptability and importance to workers? Perhaps some employees, especially those who are physically located at customer sites, may place an emphasis on the customer perspective at the expense of other sources and criteria. How should person characteristics be assessed? For example, even if teammates could make reliable and valid judgments on a dimension such as "facilitates team progress," such judgments may not be useful as feedback. For example, such assessments would have a summary and "traitish" character that would not convey how the individual could change. In contrast, development of, for example, behavioral examples or incidents that could be used as anchors or checklist items could be useful for making improvements in facilitation a doable reality. Effective performance appraisal that is linked to role or person analysis is an area that merits attention. Another appraisal aspect requiring further study is the emphasis in a virtual workplace on development. Who should serve as a coach? Does the worker him or her self take responsibility for coaching? If so, technological aids might be highly useful for making sense of patterns of feedback and identifying possible action plans for improvement. Perhaps coaching is best conducted at a team level? A great deal of peer pressure can be applied in a team setting and it is difficult to hide weaknesses from a team. Effective coaching models need to be developed and assessed for use in virtual workplaces.

Compensation

As described in Table 2, the traditional approach to compensation can be characterized as job-based. Pay levels have largely been based on the relatively fixed set of tasks that we call a job. However, if task content is becoming fluid, then there must be another basis for compensation. As discussed earlier, roles may serve as an organizing cluster of activities. Roles would likely include a broader set of tasks and be more process focused than would a traditional job description. If workers become associated with particular roles, then compensation could be role-based. However, if roles are temporary and fluid, then it seems that the only rational basis for compensation decisions is person-based.

A shift to a person-based approach to compensation is fundamental, but not as radical as it may seem. Pay based more on the person than on job characteristics is already characteristic of upper management positions. In addition, skill-based pay system embrace the person as a basis for compensation. However, in a dynamic virtual workplace it is unlikely that pay would be based on potential as it can be in a skill-based pay plan. Rather, pay would be tied to person characteristics that would be of immediate use and relevance to the workplace.

What are the implications for person-based compensation on employee satisfaction, performance, and turnover? Being paid based on relevant person characteristics would seem to be a compellingly just and rational basis for compensation. However, if these person characteristics are viewed as relatively immutable and/or having more to do with politics and popularity, then person-based pay could be a cause for serious employee satisfaction problems. As with performance appraisal, it is important to have concrete behavioral examples of the person characteristics. These examples can make the relevance to work performance clear to workers and demonstrate that, if viewed at a behavioral level, improvements are possible. In regard to performance, a basic question is what is the relative effectiveness of job and person-based compensation on performance? At an individual level, job-based compensation could be a more explicit and stronger incentive. However, at a team and organizational level, person-based compensation may yield a more cooperative and less competitive environment and promote a higher level of group performance. Person-based compensation may also be related to turnover. Compensation tied to person characteristics maybe viewed as a fair system, particularly on the part of the most skilled employees, and may therefore help to retain those workers. However, person-based compensation may also clarify to workers (and to the market) their potential market value and, therefore, increase turnover. In sum, there a number of interesting and important compensation issues that need to be addressed by practitioners and researchers.

In conclusion, it has been the purpose of this chapter to summarize where we seem to be in HRM in regard to virtual workplaces and where we might be going. I hope the above has struck your interest and enthusiasm for the topic. The chapter is not meant to be a detailed or exhaustive look at HRM and the virtual workplace. I have tried to adequately capture basic assumptions, trends, and implications. However, I am sure that I have missed some things, perhaps over interpreted or over simplified others, and given short shrift to important issues. I hope the reader can see past any shortcomings to the important points. The key points are, I think, simple but fundamentally important. First, changes are afoot in the workplace that technology can simplify, but there are fundamental and serious changes from the perspective of the human resource. Second, to remain a viable force, HRM needs to change and to demonstrate how it is a value-added player in the virtual enterprise.

We are in the midst of exciting times and the opportunities for HRM practice and research are exciting. The threats to the HRM domain are just as real. The near-term future will be a critical period for us to adapt to new organizational realities and contribute to the rapid rate of progress toward virtual workplaces. It promises to be an exciting journey and the contributions in this volume should help to give us a great start and get us underway.

NOTE

1. There are exceptions to the assertion that a shared framework is missing in a virtual organization. The assertion is based on situations in which the virtual connections are used in a top-down fashion to connect people to address a problem or business issue. However, a virtual organization can develop in a bottom-up fashion. In this case, the ability to virtually connect is used as a tool so that people who already share a common interest can be brought together. A framework may already be shared among these participants due to their common area of interest. For example, a colleague of mine is a member of a virtual organization of Harley Davidson motorcycle owners. This group emerged due to their passion for their chosen brand of motorcycle. More than simply sharing an interest in the product, the brand allegiance brings with it a common set of values and priorities. The common framework has enabled this virtual group to mobilize and achieve outcomes that may have not been possible without the virtual connection among them. For example, the group purchased a specially equipped van for an injured member and financed a fund that assists in paying for his care (Van Hook, 2001). Virtual organizations that form in a bottom-up fashion enjoy the strength of sharing a common framework before the virtual organization is formed. In this chapter, I am focused on the top-down virtual organization formed to perform a function, not as a means for sharing a common interest or passion.

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